US00RE46738E

(19) **United States**

(12) **Reissued Patent**

Sasaki et al.

(10) **Patent Number: US RE46,738 E**

(45) **Date of Reissued Patent: Feb. 27, 2018**

(54) **GAMING MACHINE WITH DICE SHAKING UNIT PERFORMING DICE SHAKING MOTIONS WITH VARYING AMPLITUDES**

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(72) Inventors: **Yoshitomo Sasaki**, Tokyo (JP); **Akira Shimizu**, Tokyo (JP); **Katsuhiro Kido**, Tokyo (JP); **Kenta Kitamura**, Tokyo (JP); **Hideaki Kishi**, Tokyo (JP); **Hiroatsu Ike**, Tokyo (JP)

(73) Assignee: **ARUZE GAMING AMERICA, INC.**, Las Vegas, NV (US)

(21) Appl. No.: **15/398,961**

(22) Filed: **Jan. 5, 2017**

Related U.S. Patent Documents

Reissue of:

(64) Patent No.: **8,926,438**
Issued: **Jan. 6, 2015**
Appl. No.: **13/062,717**
PCT Filed: **Sep. 8, 2009**
PCT No.: **PCT/JP2009/065643**
§ 371 (c)(1),
(2) Date: **Mar. 8, 2011**
PCT Pub. No.: **WO2010/029912**
PCT Pub. Date: **Mar. 18, 2010**

U.S. Applications:

(60) Provisional application No. 61/095,821, filed on Sep. 10, 2008, provisional application No. 61/095,828, (Continued)

(51) **Int. Cl.**
A63F 9/04 (2006.01)
G07F 17/32 (2006.01)

(52) **U.S. Cl.**
CPC ***G07F 17/32*** (2013.01); *G07F 17/3216* (2013.01)

(58) **Field of Classification Search**
CPC A63F 9/0415; A63F 9/0413; G07F 17/32; G07F 17/3216
(Continued)

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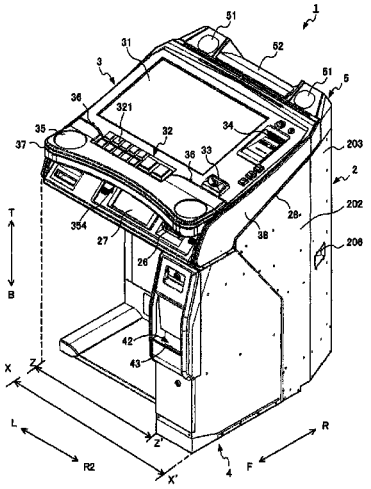
(Continued)

Primary Examiner — Beverly M Flanagan
(74) *Attorney, Agent, or Firm* — Lex IP Meister, PLLC

(57) **ABSTRACT**

Provided is a gaming machine having a cabinet. Between the back as a back face and the right side face of the sides of the cabinet, the gaming machine has a right end side, which is formed by cutting a plane parallel to the gravitational direction in a manner to join lines spaced at predetermined distances in the individual directions of the back and the right side face from a line of intersection, on which the back and the right side face intersect when extended. The gaming machine also has a left end side between the back and a left side face. Moreover, the right end side and the left end side are symmetric with respect to a plane dividing the cabinet equally to the right and left.

9 Claims, 155 Drawing Sheets



Related U.S. Application Data

filed on Sep. 10, 2008, provisional application No. 61/095,846, filed on Sep. 10, 2008, provisional application No. 61/096,146, filed on Sep. 11, 2008, provisional application No. 61/096,162, filed on Sep. 11, 2008, provisional application No. 61/096,344, filed on Sep. 12, 2008, provisional application No. 61/096,348, filed on Sep. 12, 2008, provisional application No. 61/114,799, filed on Nov. 14, 2008.

(58) **Field of Classification Search**
USPC ..... 463/46; 273/145 R, 145 C, 146
See application file for complete search history.

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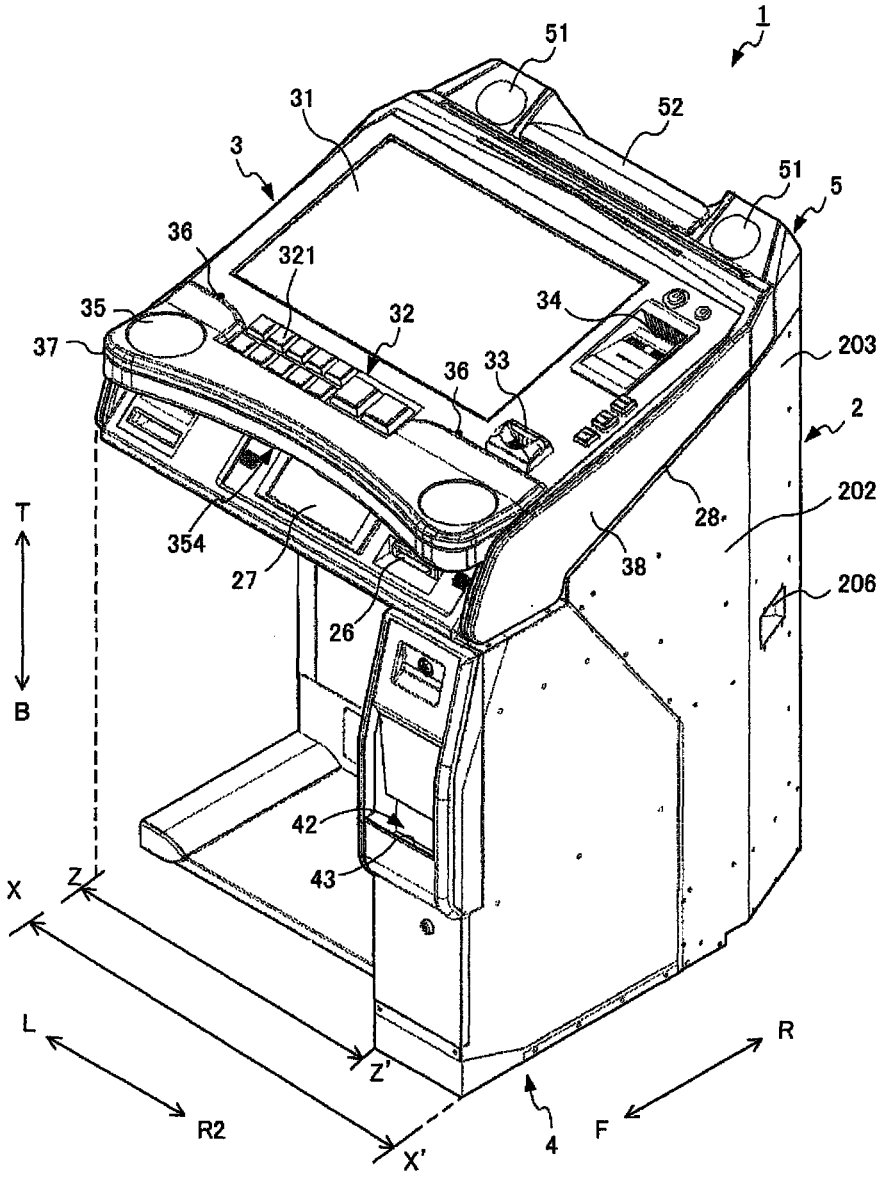
* cited by examiner

FIG. 1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51
31
52
3
51
5
36
321
35
32
34
37
36
33
203
2
202
28
354
27
38
206
26
T
B
42
43
X
Z
L
R2
Z'
X'
4
F
R

FIG. 1A

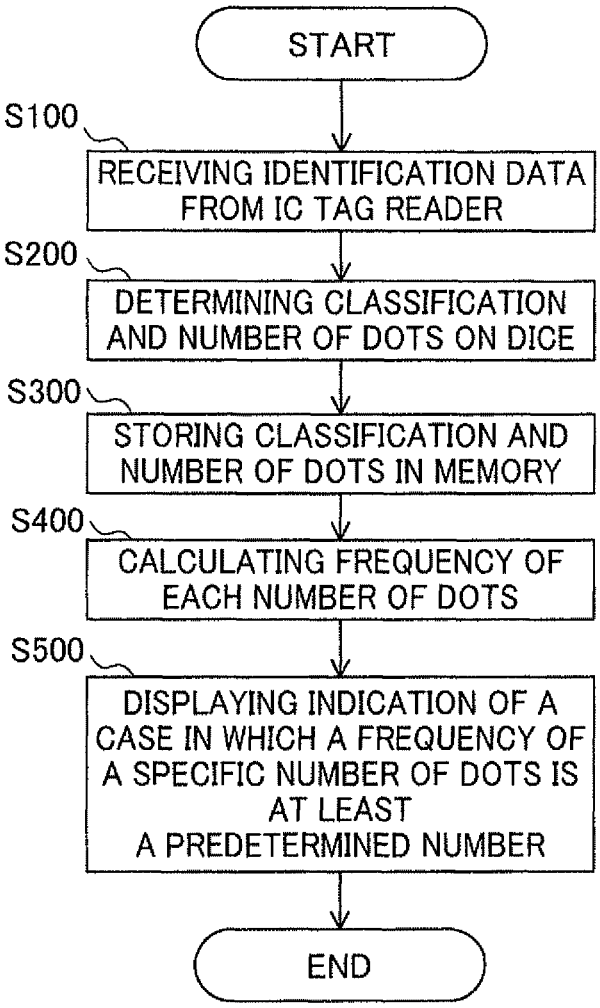

START
S100
RECEIVING IDENTIFICATION DATA FROM IC TAG READER
S200
DETERMINING CLASSIFICATION AND NUMBER OF DOTS ON DICE
S300
STORING CLASSIFICATION AND NUMBER OF DOTS IN MEMORY
S400
CALCULATING FREQUENCY OF EACH NUMBER OF DOTS
S500
DISPLAYING INDICATION OF A CASE IN WHICH A FREQUENCY OF A SPECIFIC NUMBER OF DOTS IS AT LEAST A PREDETERMINED NUMBER
END

FIG. 1B

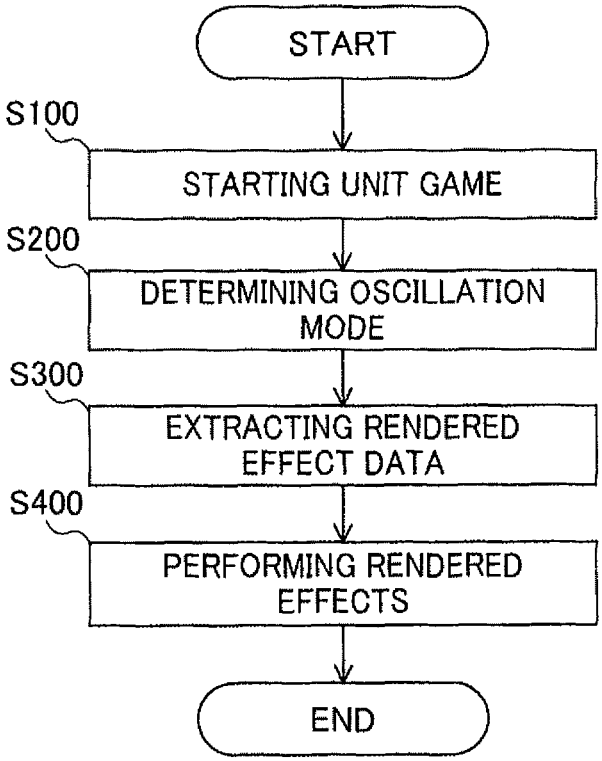

START
S100
STARTING UNIT GAME
S200
DETERMINING OSCILLATION MODE
S300
EXTRACTING RENDERED EFFECT DATA
S400
PERFORMING RENDERED EFFECTS
END

FIG. 1C

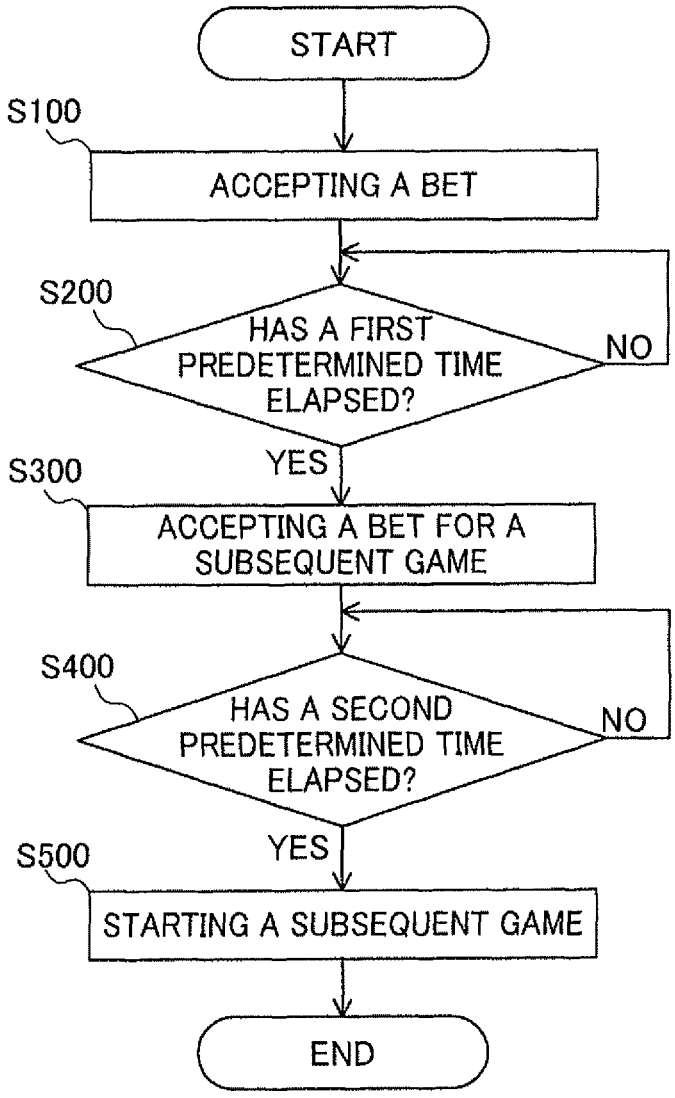

START
S100
ACCEPTING A BET
S200
HAS A FIRST PREDETERMINED TIME ELAPSED?
NO
YES
S300
ACCEPTING A BET FOR A SUBSEQUENT GAME
S400
HAS A SECOND PREDETERMINED TIME ELAPSED?
NO
YES
S500
STARTING A SUBSEQUENT GAME
END

FIG. 1D

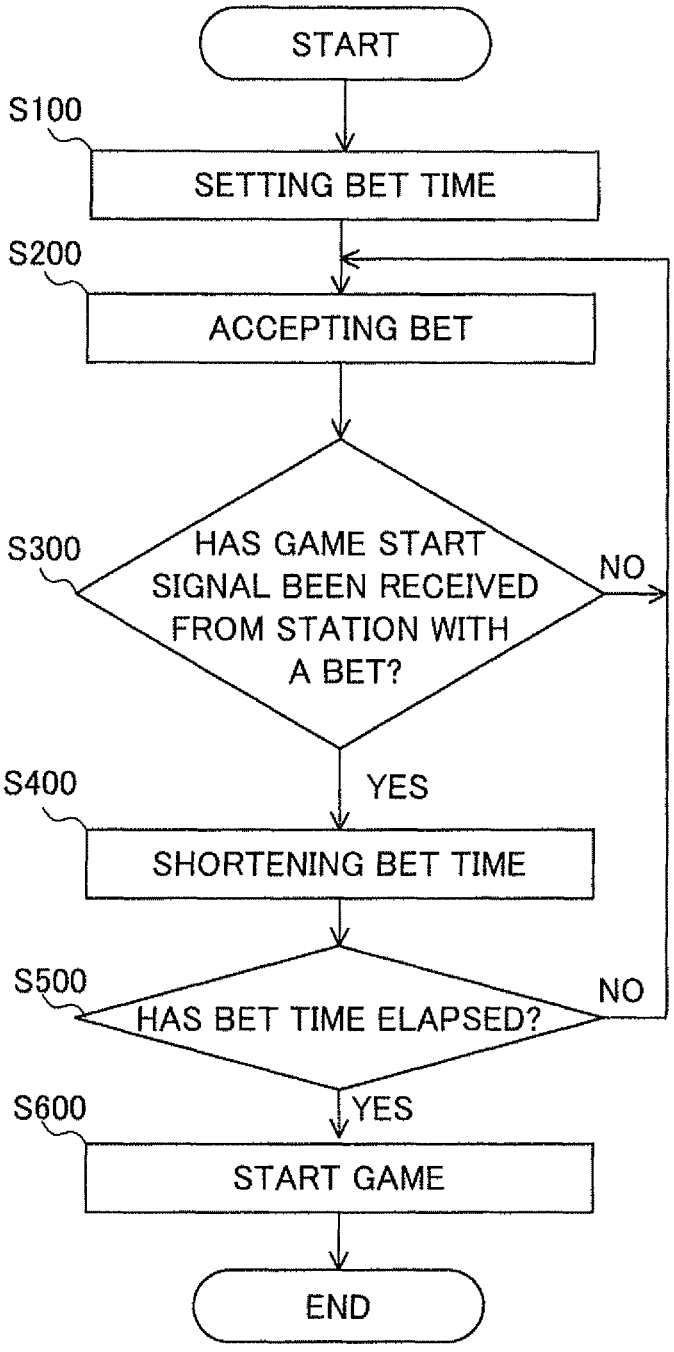

START
S100
SETTING BET TIME
S200
ACCEPTING BET
S300
HAS GAME START SIGNAL BEEN RECEIVED FROM STATION WITH A BET?
NO
YES
S400
SHORTENING BET TIME
S500
HAS BET TIME ELAPSED?
NO
YES
S600
START GAME
END

FIG. 1E

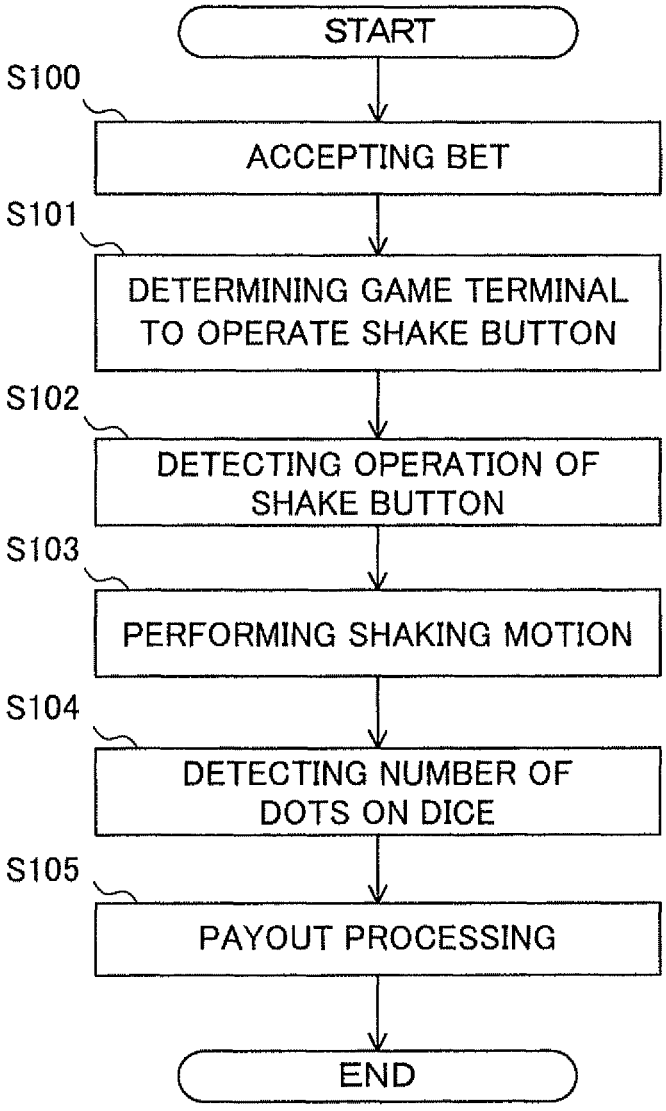

START
S100
ACCEPTING BET
S101
DETERMINING GAME TERMINAL TO OPERATE SHAKE BUTTON
S102
DETECTING OPERATION OF SHAKE BUTTON
S103
PERFORMING SHAKING MOTION
S104
DETECTING NUMBER OF DOTS ON DICE
S105
PAYOUT PROCESSING
END

FIG. 1F

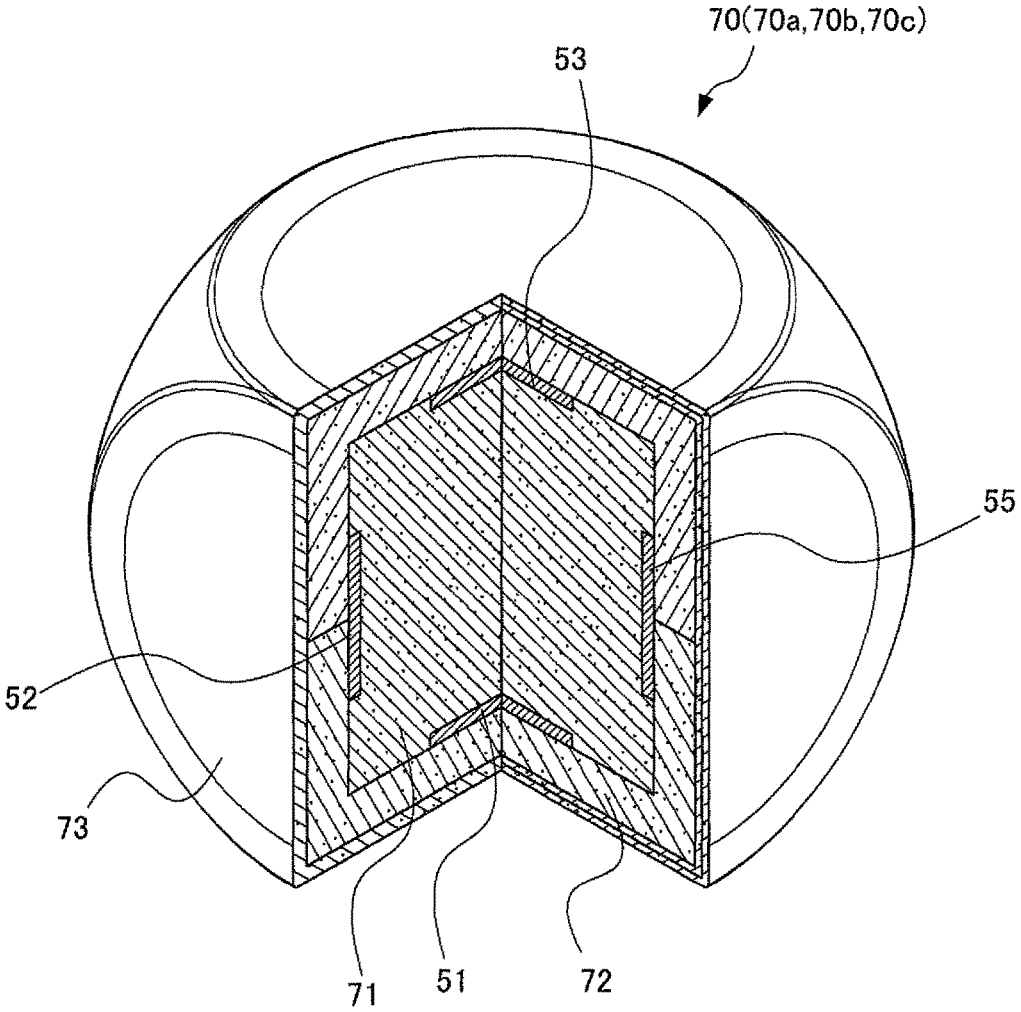


FIG. 1G

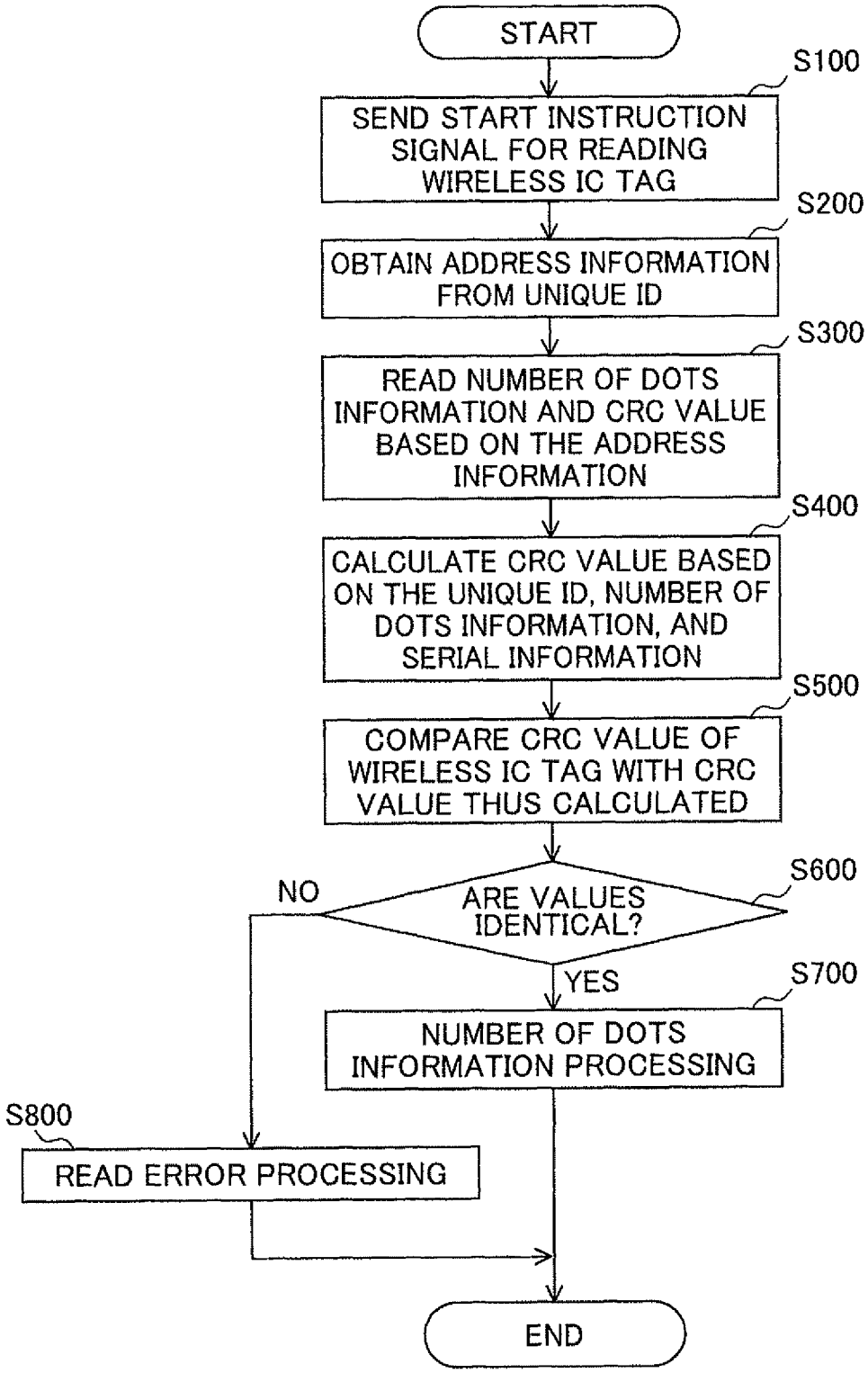

START
S100
SEND START INSTRUCTION SIGNAL FOR READING WIRELESS IC TAG
S200
OBTAIN ADDRESS INFORMATION FROM UNIQUE ID
S300
READ NUMBER OF DOTS INFORMATION AND CRC VALUE BASED ON THE ADDRESS INFORMATION
S400
CALCULATE CRC VALUE BASED ON THE UNIQUE ID, NUMBER OF DOTS INFORMATION, AND SERIAL INFORMATION
S500
COMPARE CRC VALUE OF WIRELESS IC TAG WITH CRC VALUE THUS CALCULATED
S600
ARE VALUES IDENTICAL?
NO
YES
S700
NUMBER OF DOTS INFORMATION PROCESSING
S800
READ ERROR PROCESSING
END

FIG. 2

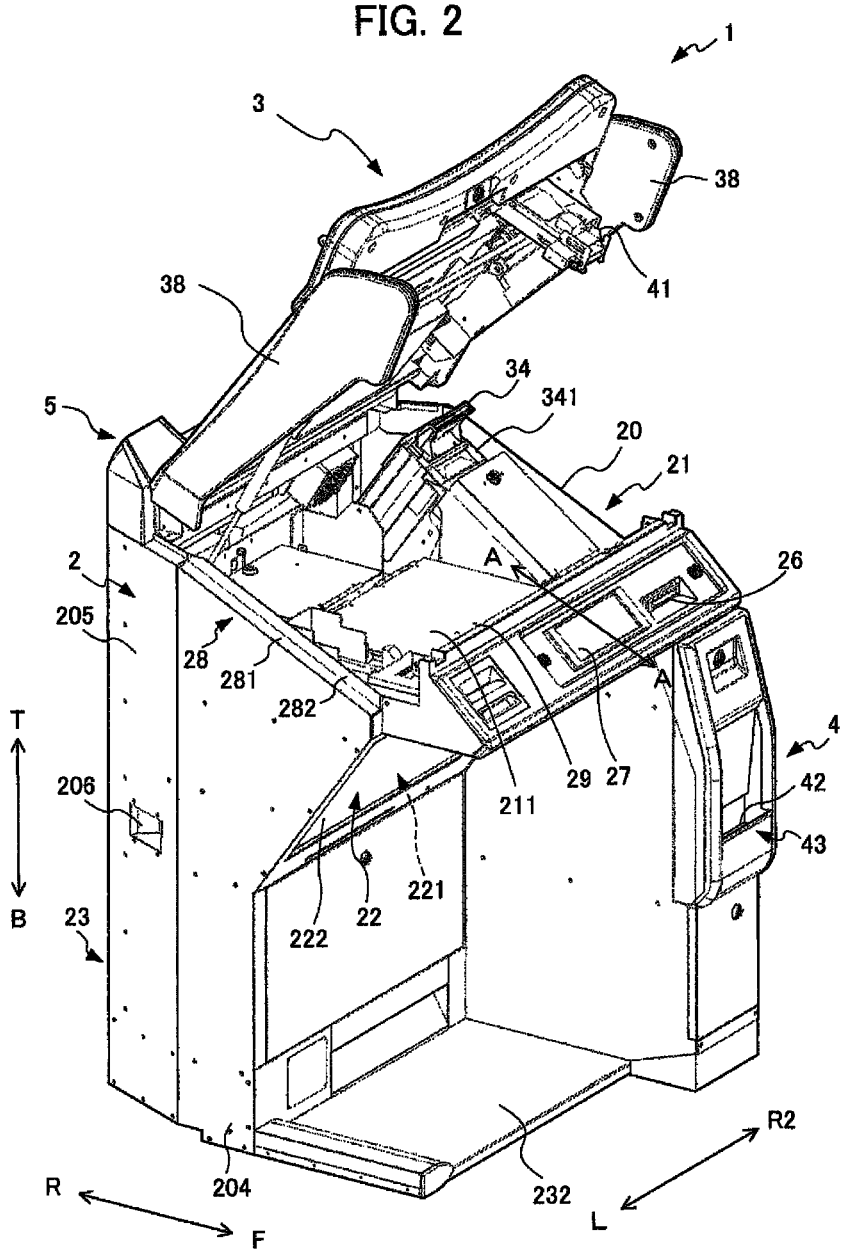

1
3
38
41
38
34
341
5
20
21
2
A
26
205
28
281
282
A
4
T
29
27
42
206
211
43
221
22
B
23
222
R2
R
204
232
L
F

FIG.2A

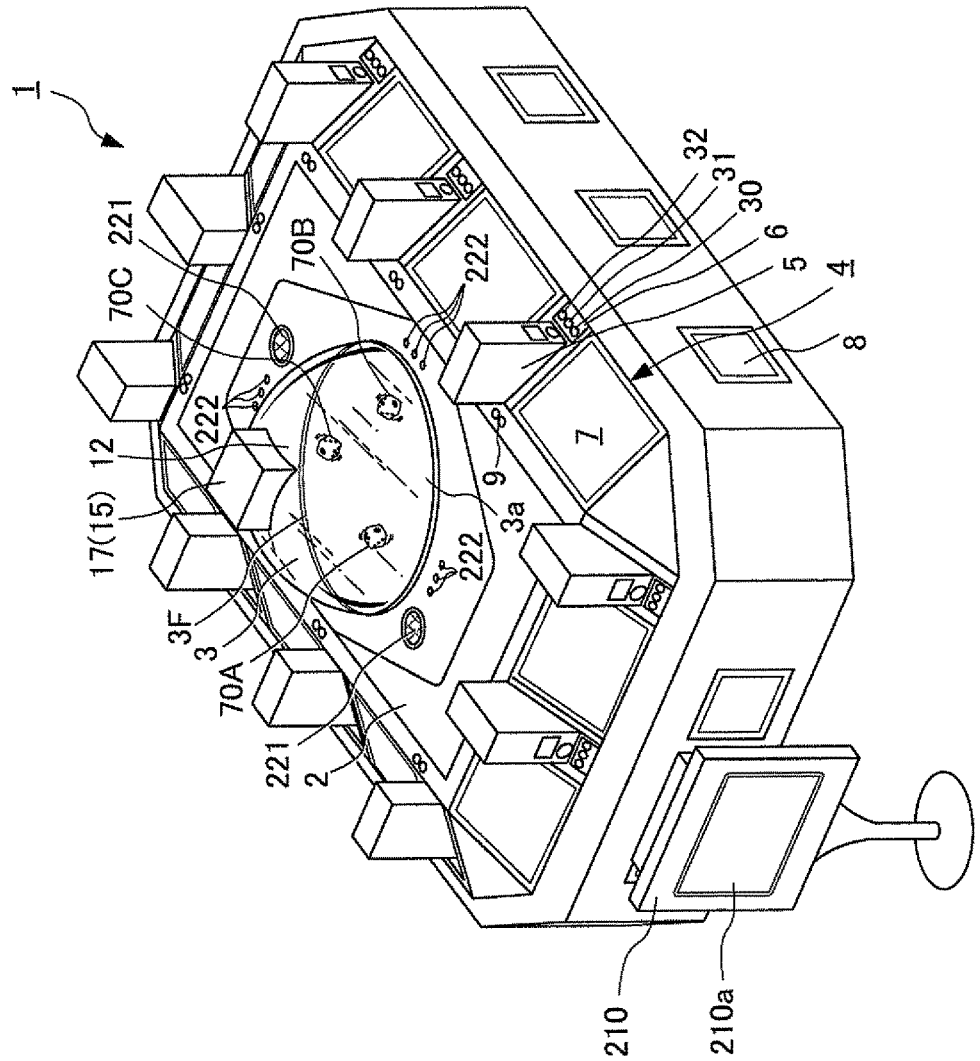

1
221
70C
70B
222
32
31
30
6
5
4
8
222
12
17(15)
9
7
3a
222
3F
3
70A
221
2
210
210a

FIG.2B

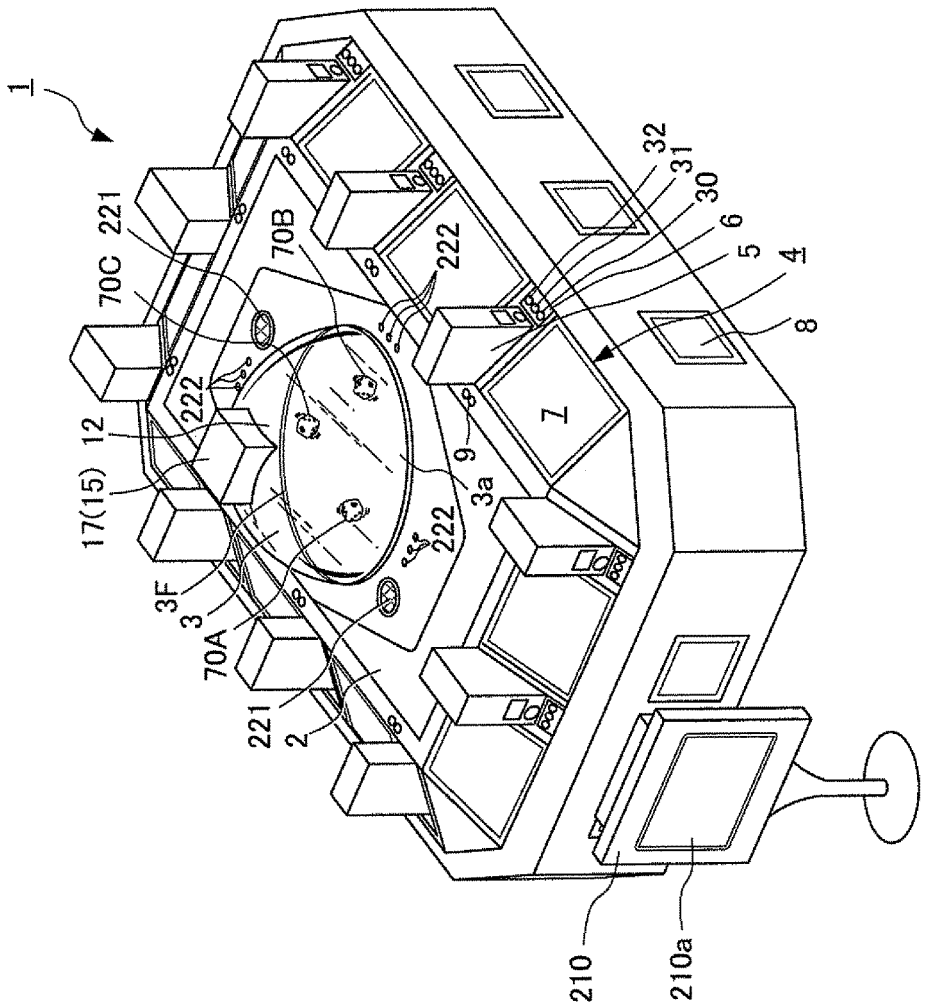

1
221
70C
70B
222
32
31
30
6
5
4
8
12
17(15)
222
9
3a
7
222
3F
3
70A
221
2
210
210a

FIG.2C

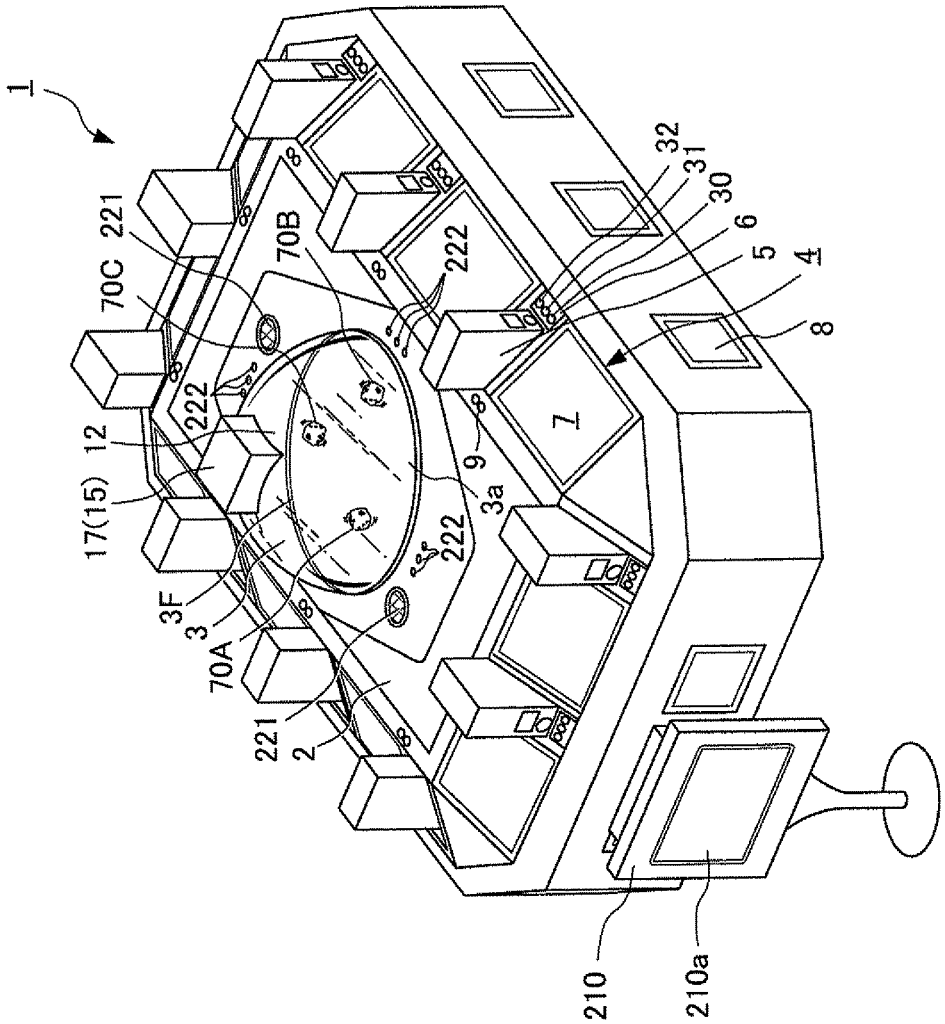

1
221
70C
70B
222
32
31
30
6
5
4
8
222
12
17(15)
9
3a
7
222
3F
3
70A
221
2
210
210a

FIG.2D

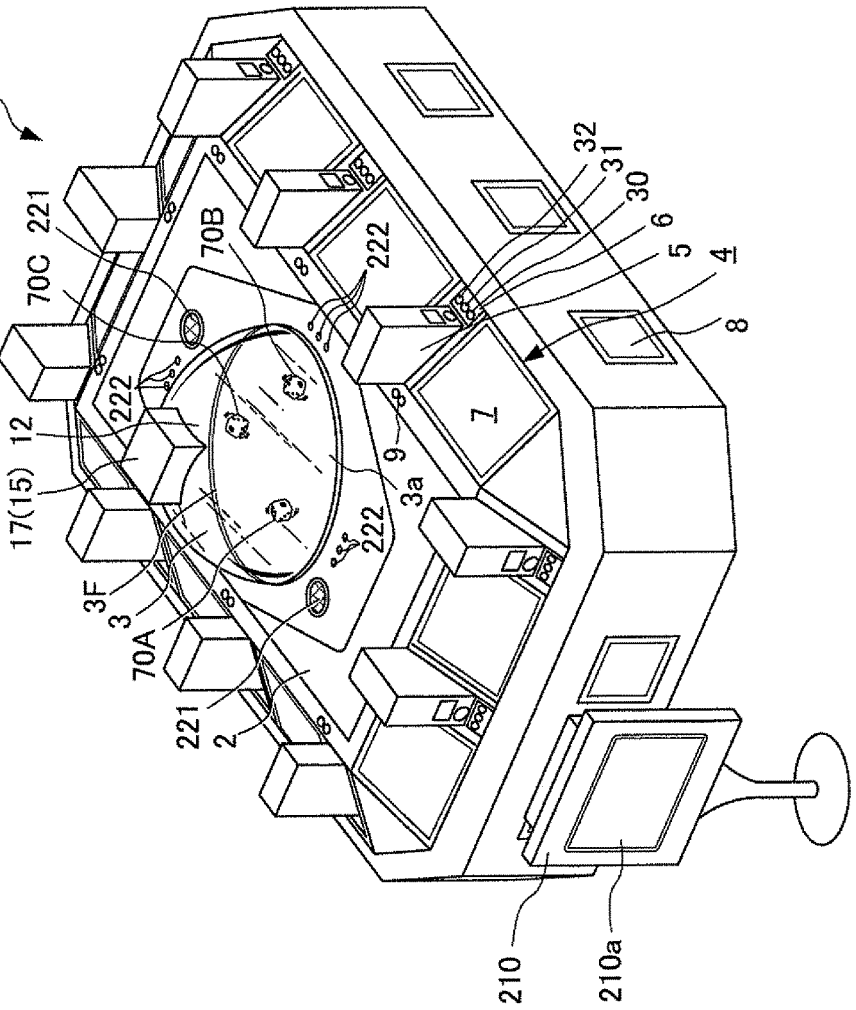

1
221
70C
70B
222
32
31
30
6
5
4
8
222
12
7
17(15)
9
3a
222
3F
3
70A
221
2
210
210a

FIG. 2E

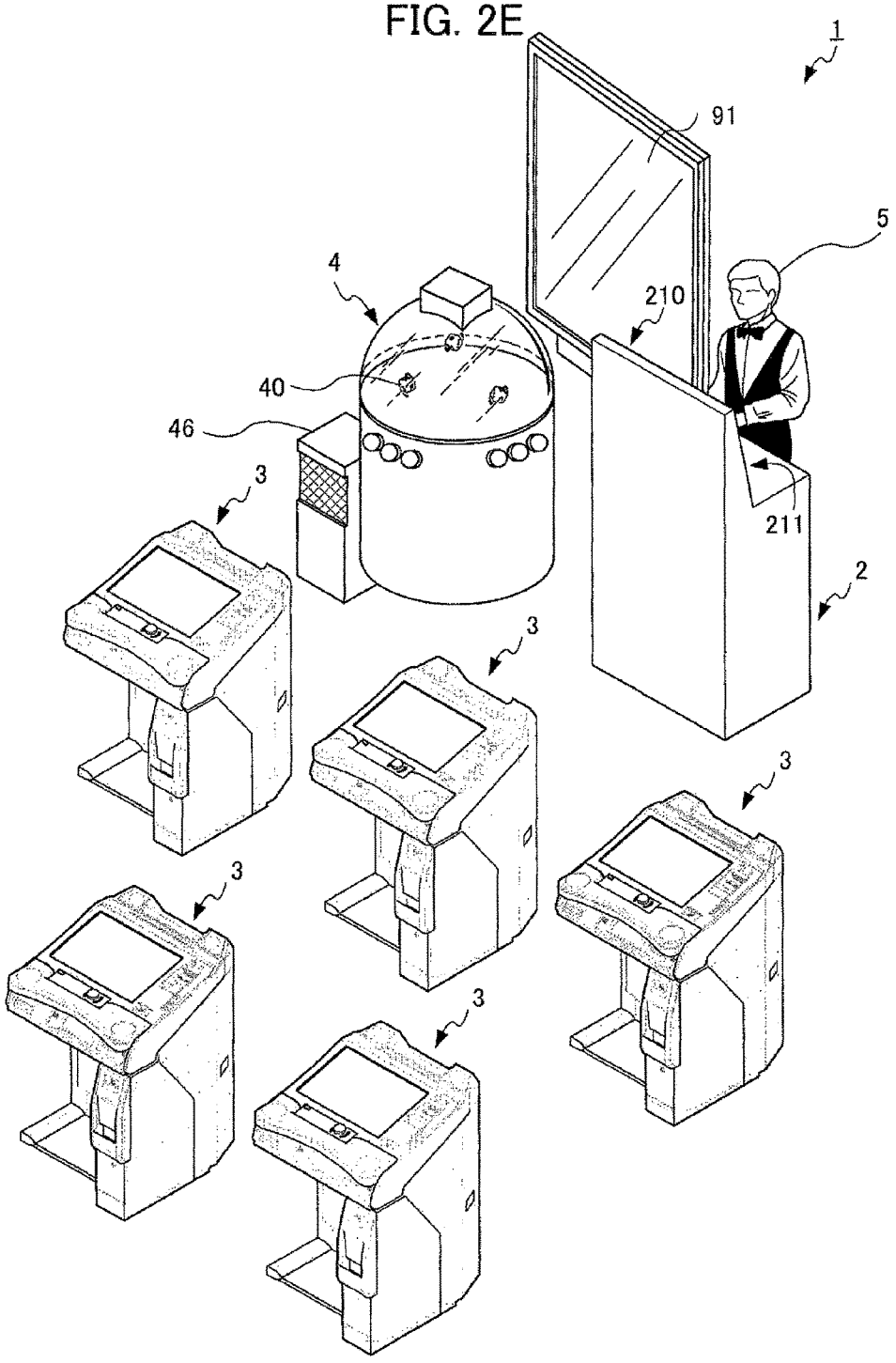


FIG.2F

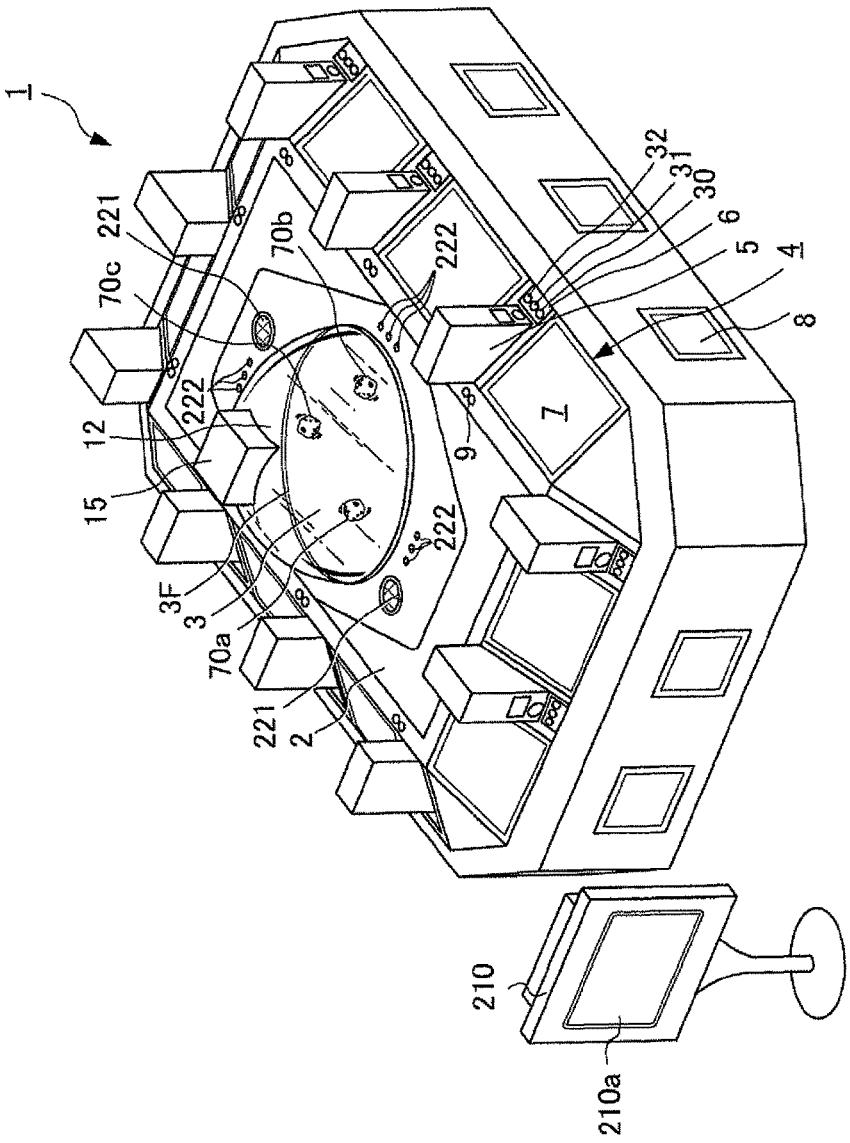
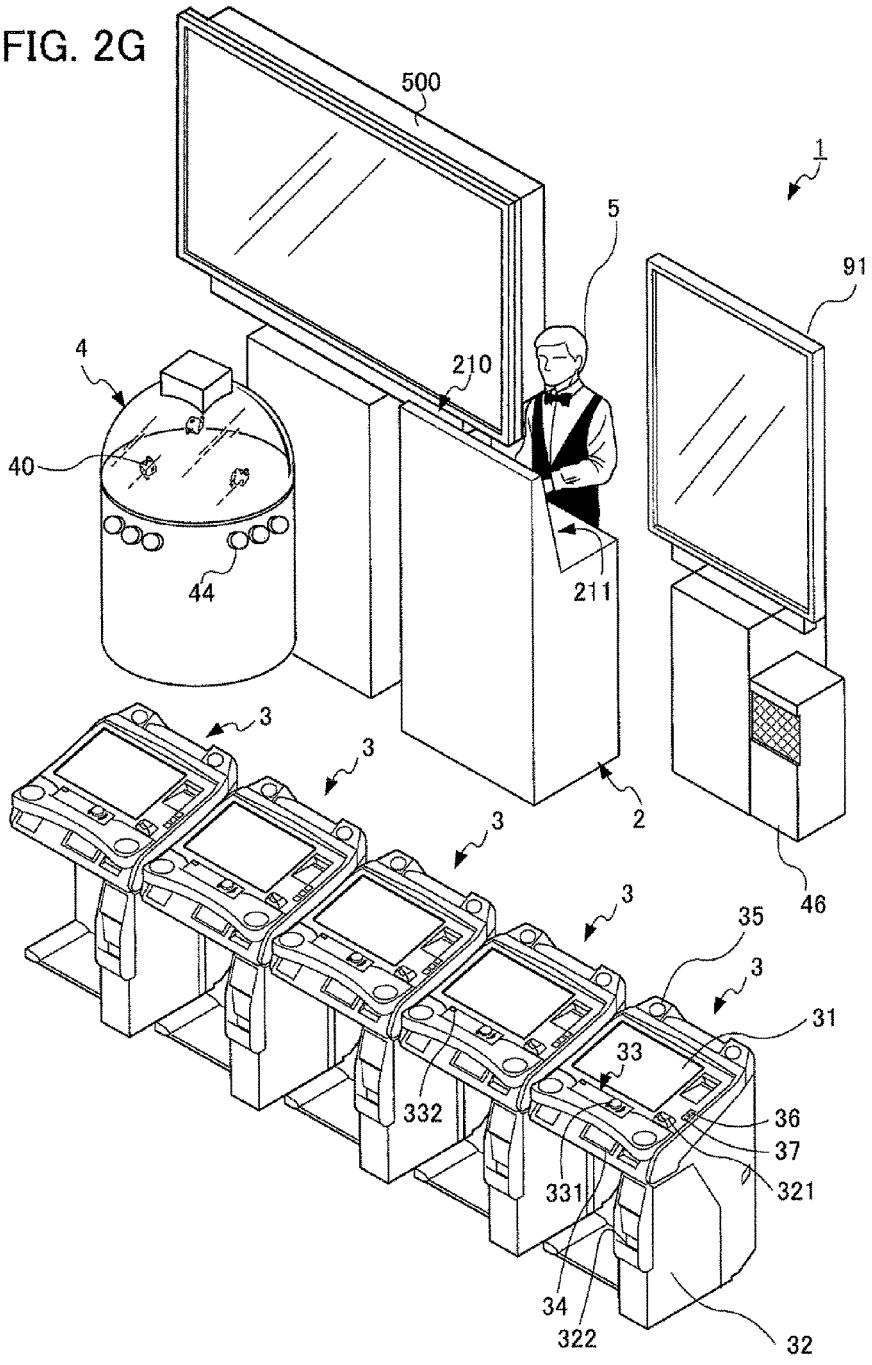

1
221
70c
70b
222
32
31
30
6
5
4
8
12
222
7
9
15
222
3F
3
70a
221
2
210
210a

FIG. 2G


500
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91
4
210
40
44
211
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3
3
2
46
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3
31
33
332
36
37
331
321
34
322
32

FIG. 3

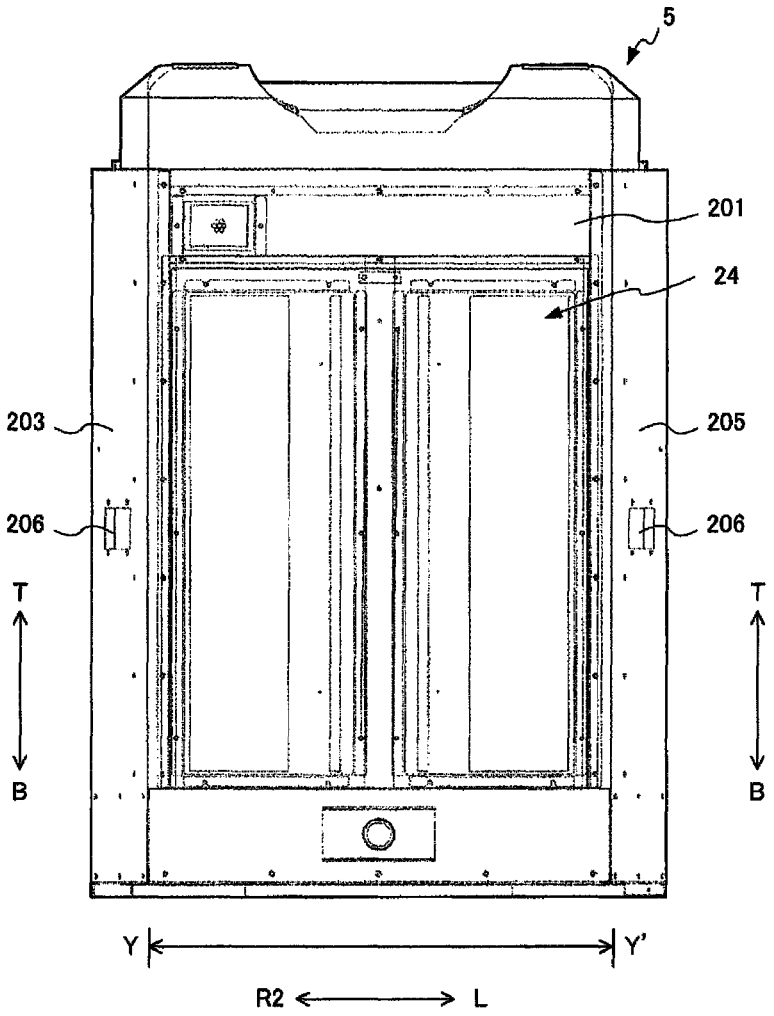


FIG. 3A

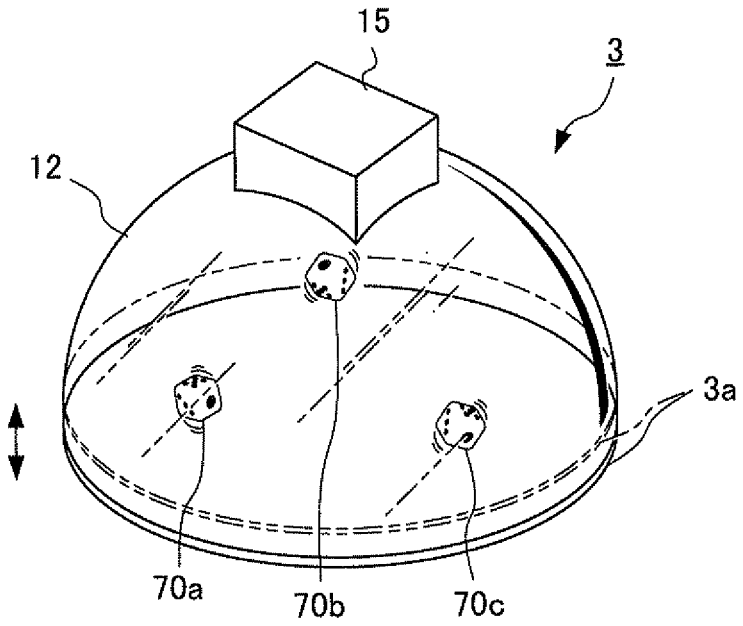


FIG. 4A

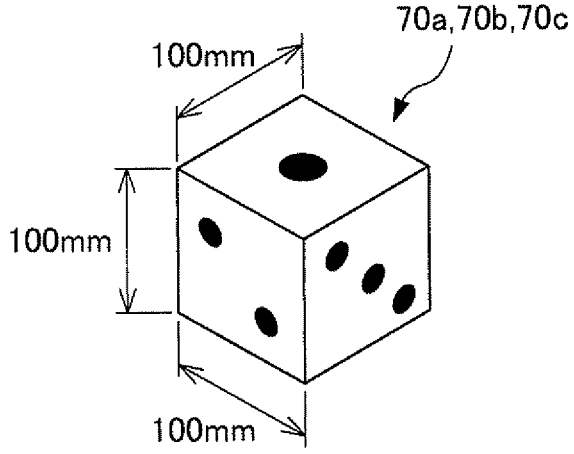


FIG. 3B

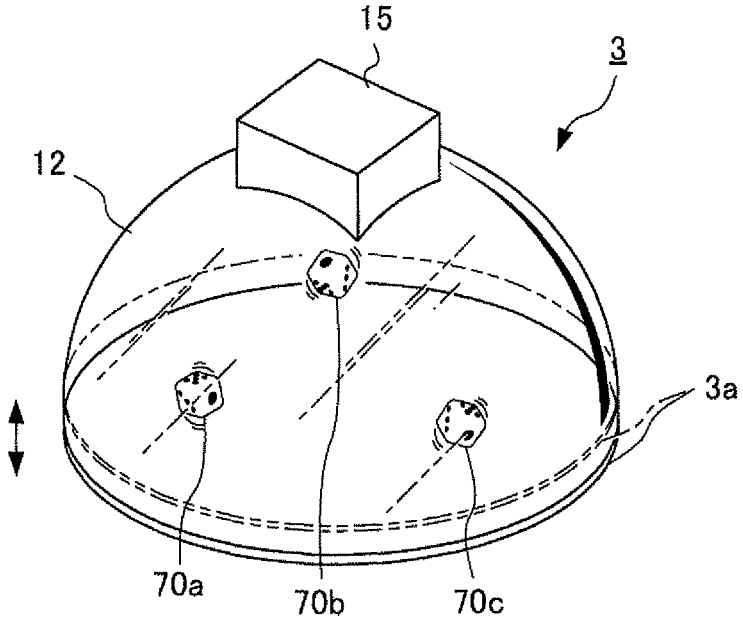


FIG. 4B

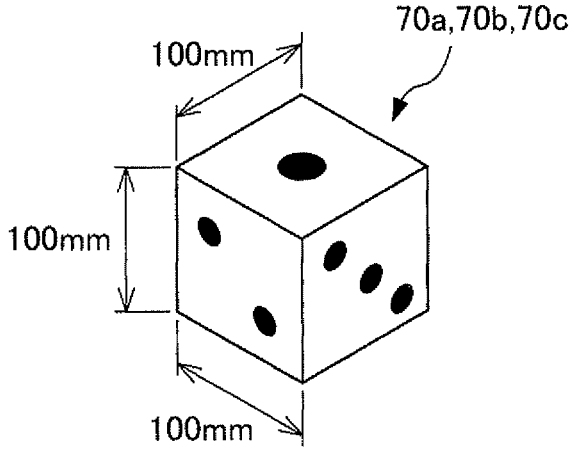


FIG. 3C

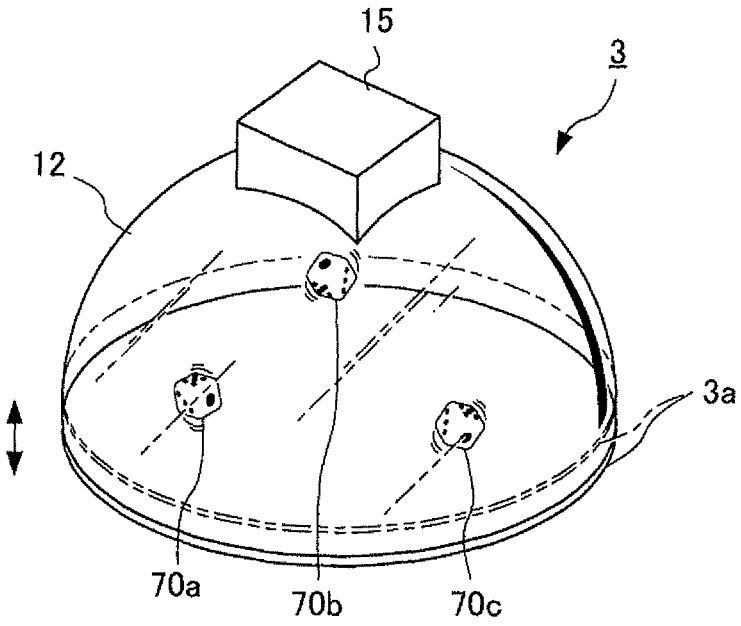


FIG. 4C

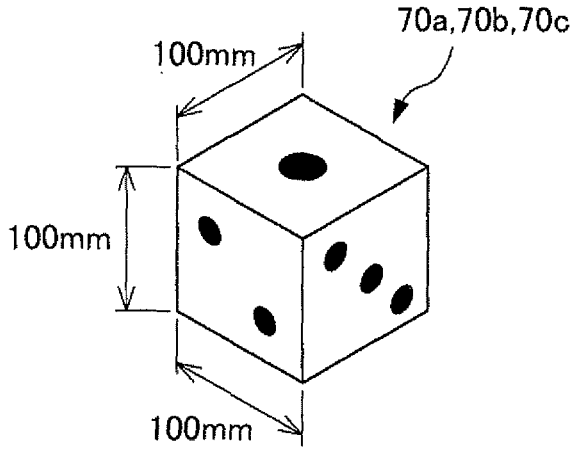


FIG. 3D

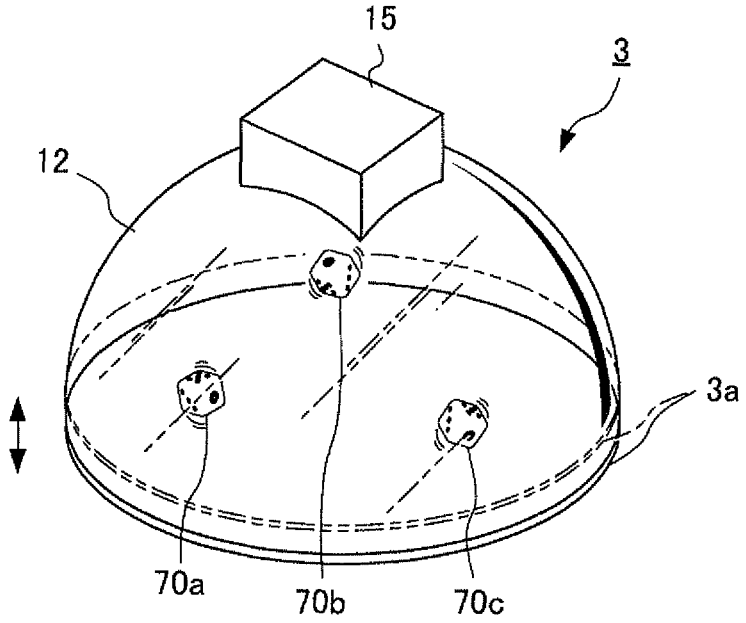


FIG. 4D

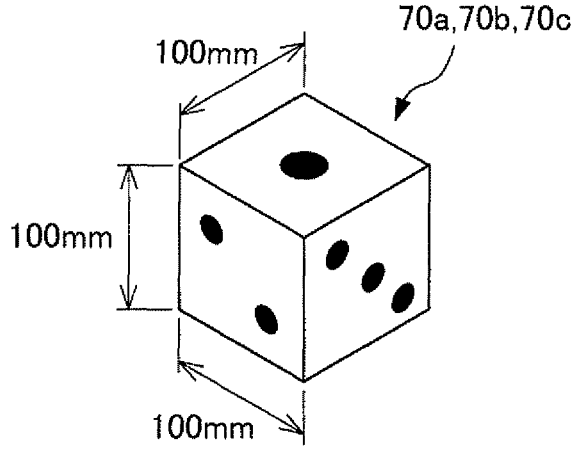
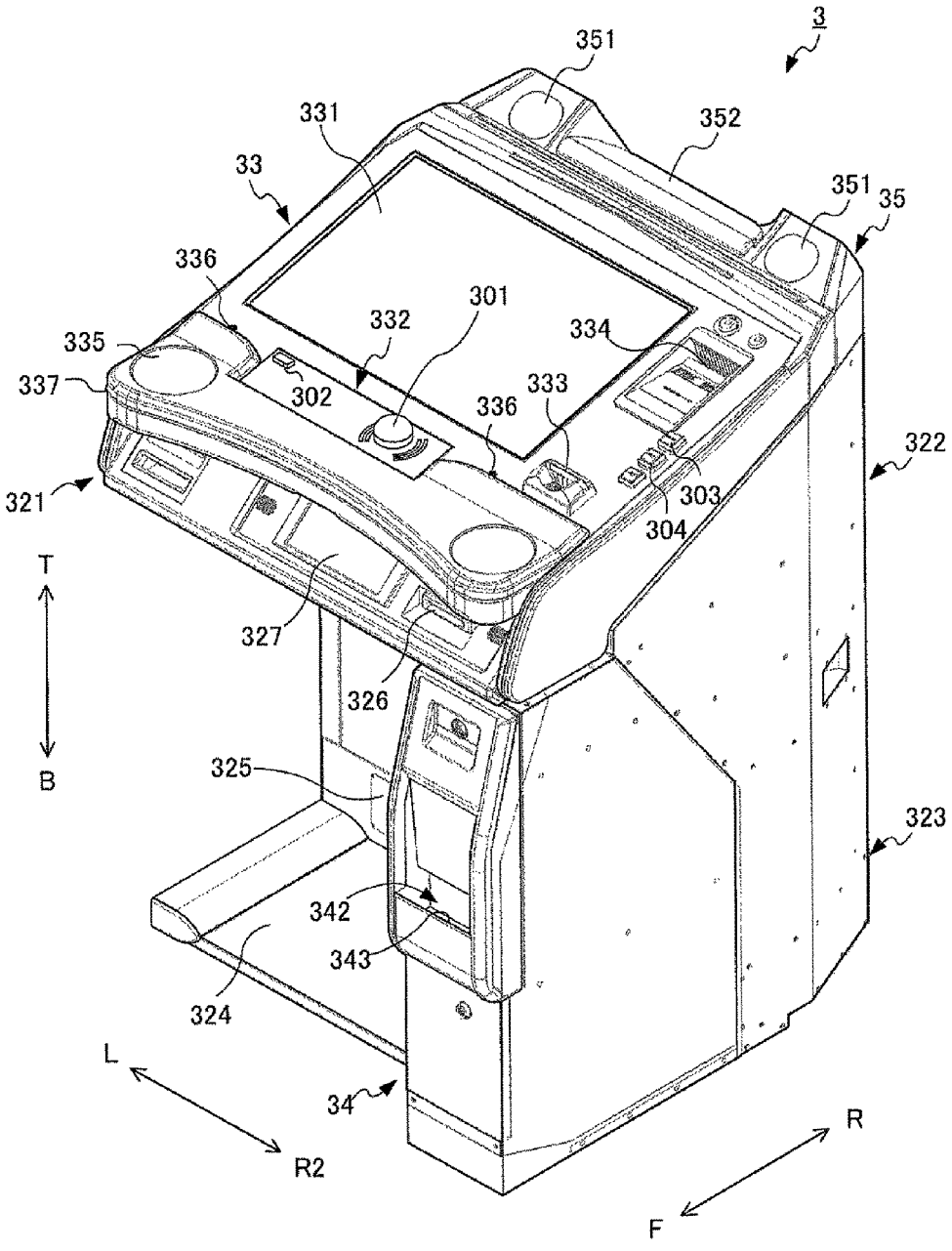


FIG. 3E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T
327
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B
325
323
342
343
324
L
34
R2
R
F

FIG. 3F

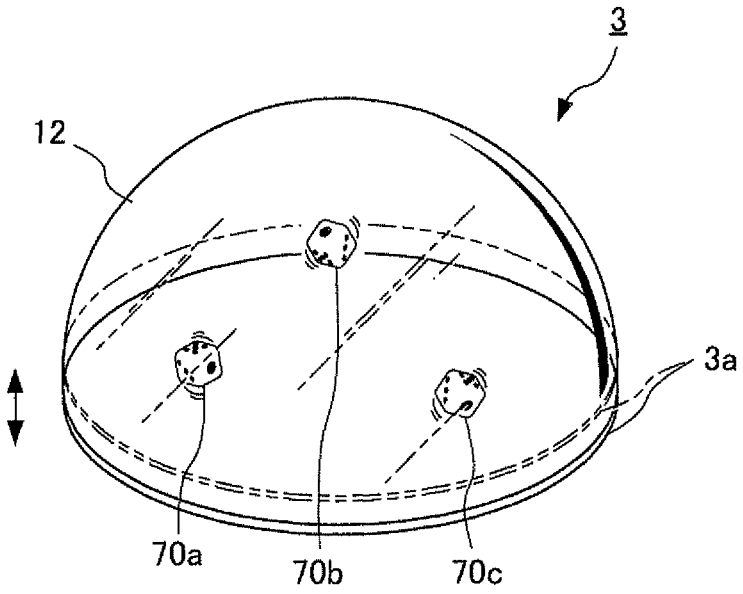


FIG. 3G

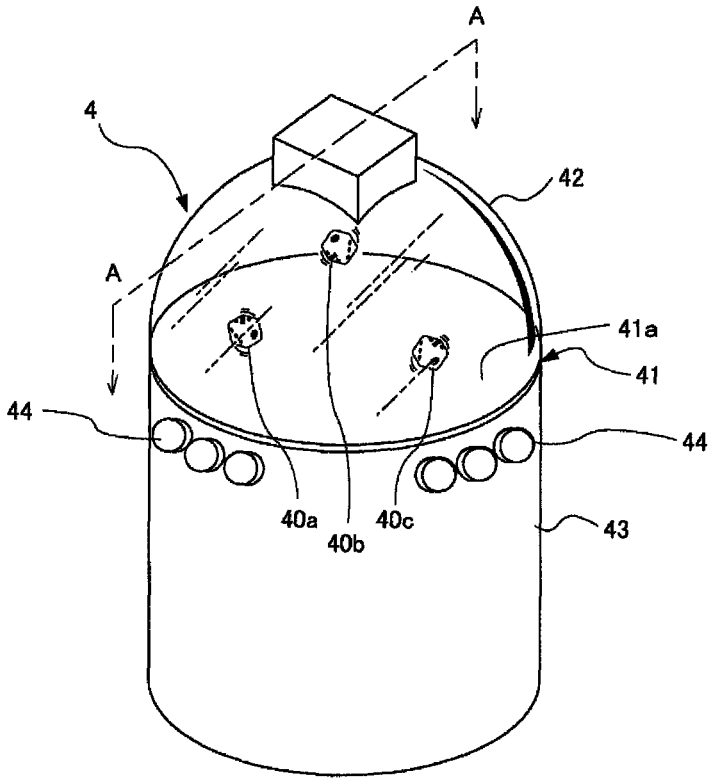


FIG. 4

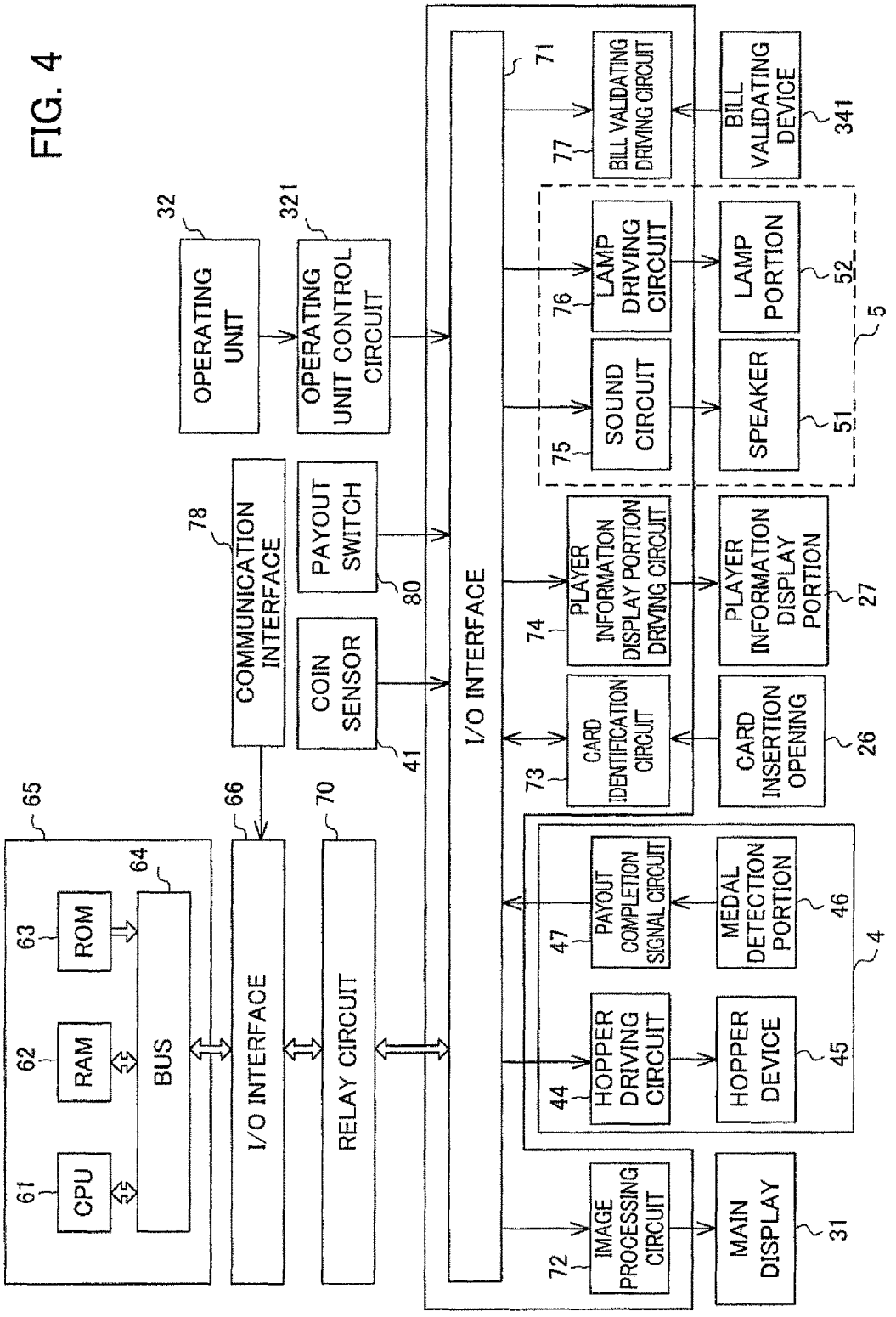
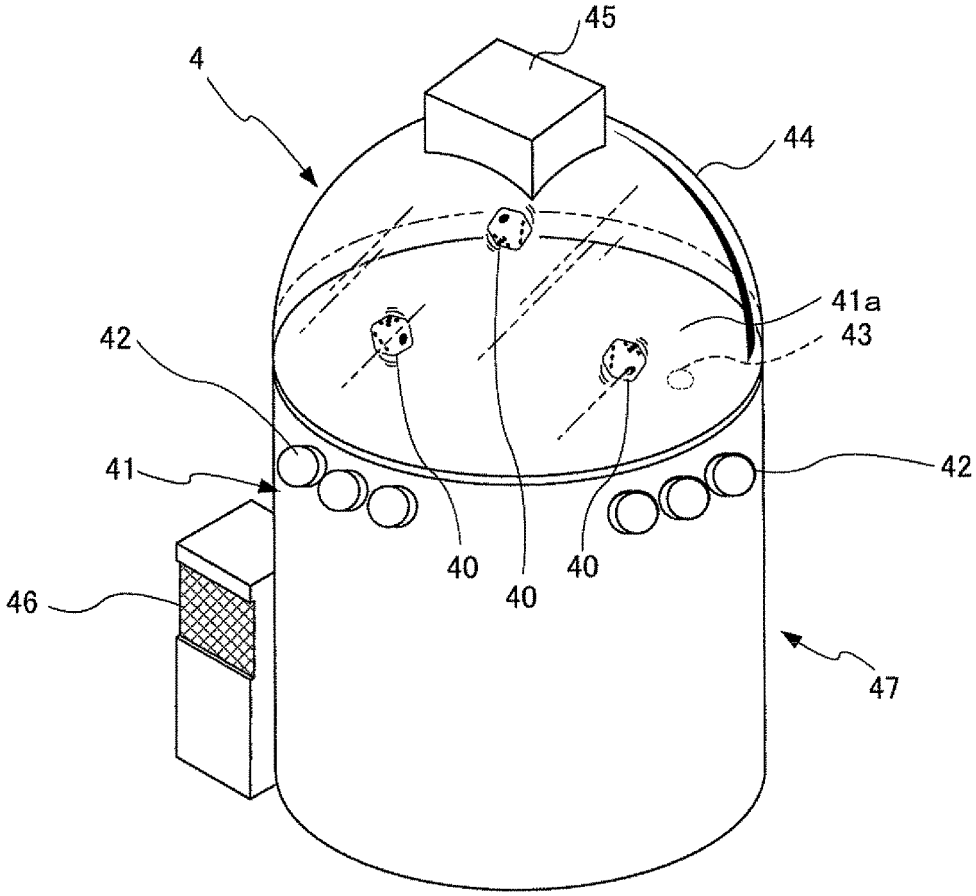

65
61
CPU
63
ROM
62
RAM
64
BUS
66
I/O INTERFACE
70
RELAY CIRCUIT
78
COMMUNICATION INTERFACE
41
COIN SENSOR
80
PAYOUT SWITCH
32
OPERATING UNIT
321
OPERATING UNIT CONTROL CIRCUIT
I/O INTERFACE
71
72
IMAGE PROCESSING CIRCUIT
MAIN DISPLAY
31
73
CARD IDENTIFICATION CIRCUIT
74
PLAYER INFORMATION DISPLAY PORTION DRIVING CIRCUIT
75
SOUND CIRCUIT
76
LAMP DRIVING CIRCUIT
77
BILL VALIDATING DRIVING CIRCUIT
44
HOPPER DRIVING CIRCUIT
HOPPER DEVICE
45
47
PAYOUT COMPLETION SIGNAL CIRCUIT
MEDAL DETECTION PORTION
46
4
CARD INSERTION OPENING
26
PLAYER INFORMATION DISPLAY PORTION
27
SPEAKER
51
LAMP PORTION
52
5
BILL VALIDATING DEVICE
341

FIG. 4E



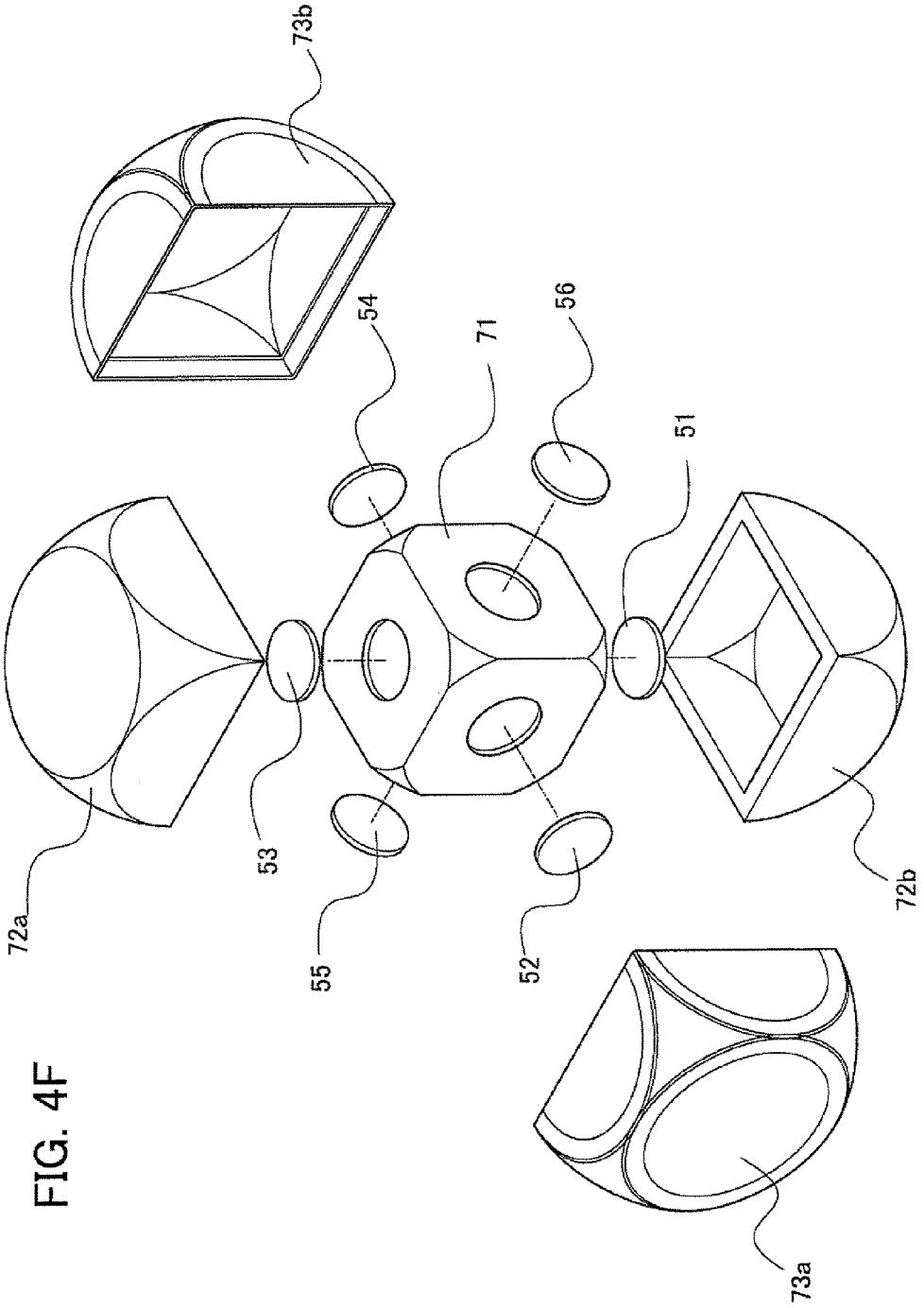


FIG. 4F

FIG. 4G

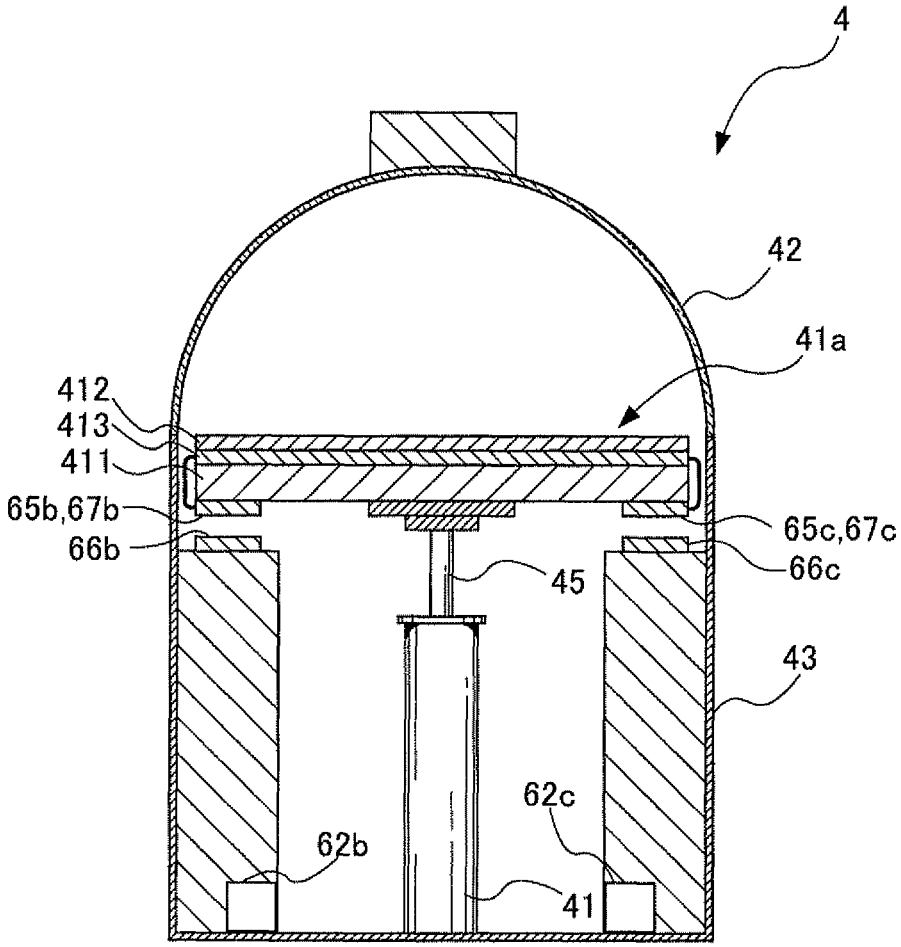


FIG. 5

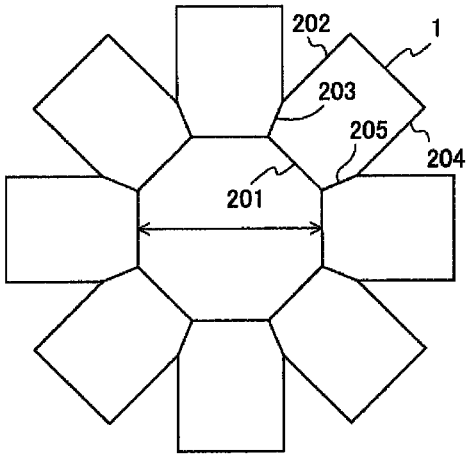


FIG. 6

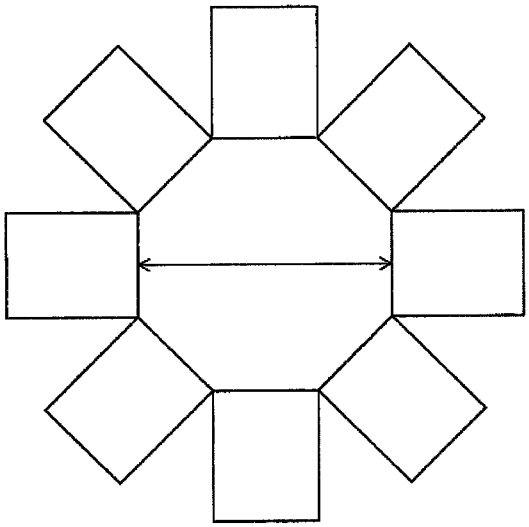


FIG. 5A

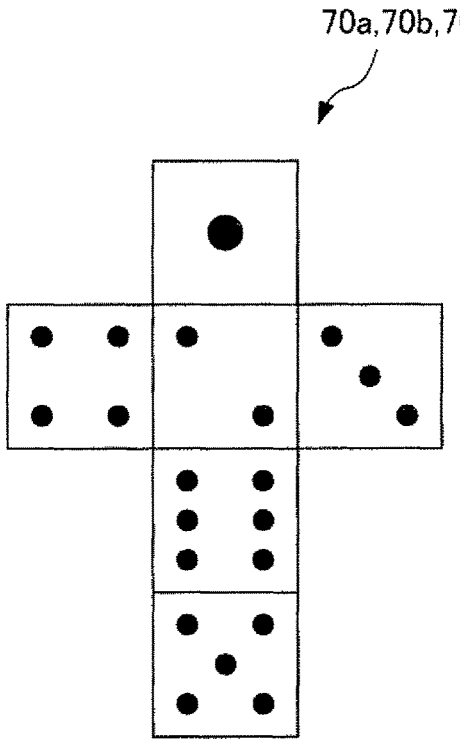


FIG. 6A

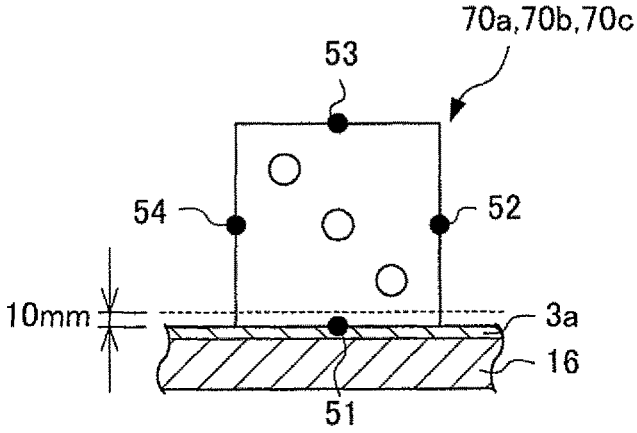


FIG. 5B

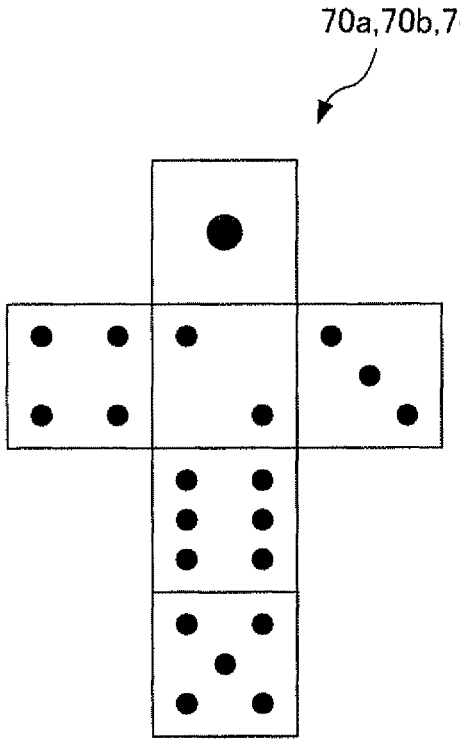


FIG. 6B

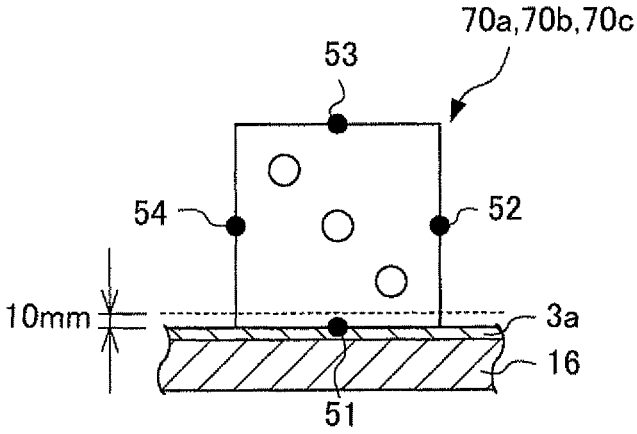


FIG. 5C

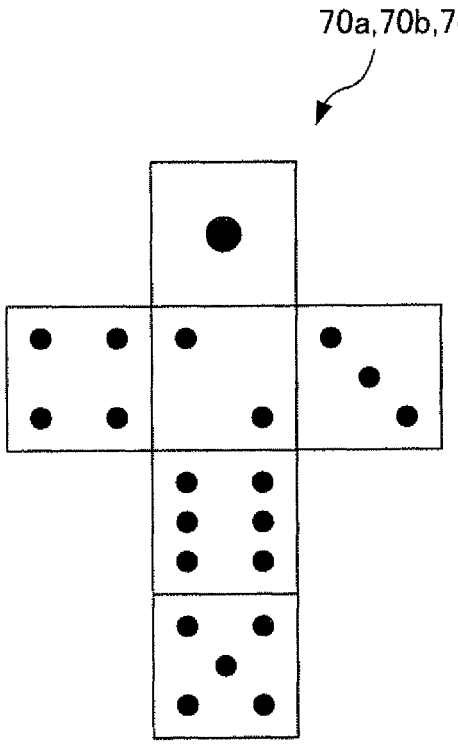


FIG. 6C

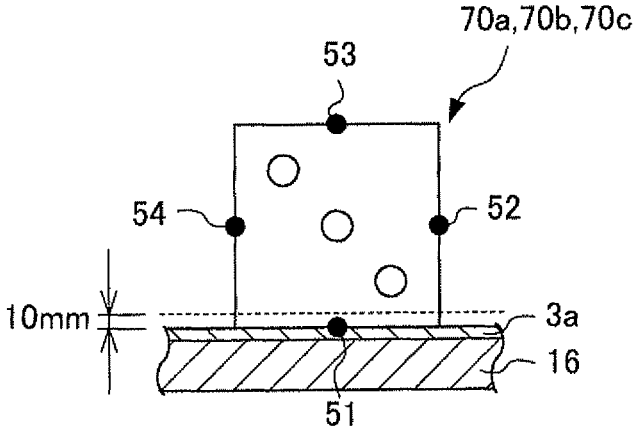


FIG. 5D

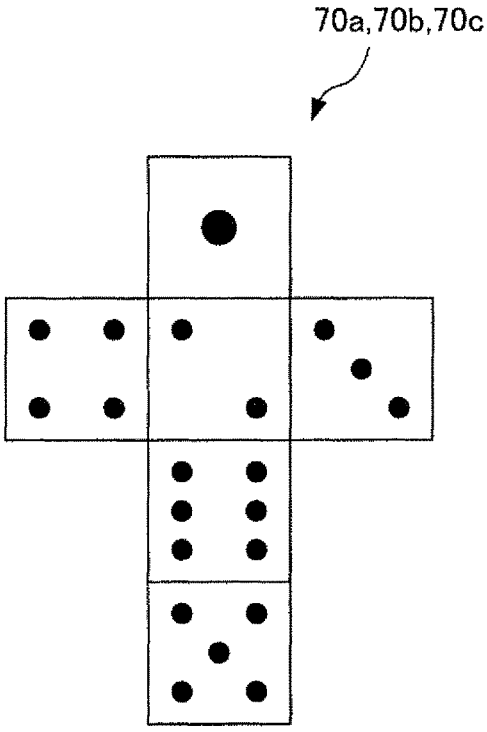


FIG. 6D

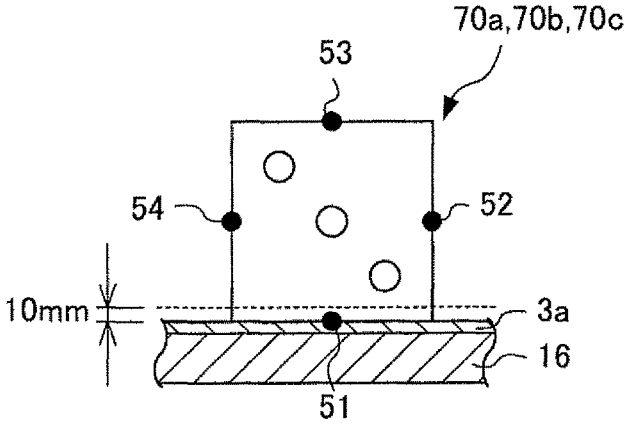


FIG. 5E

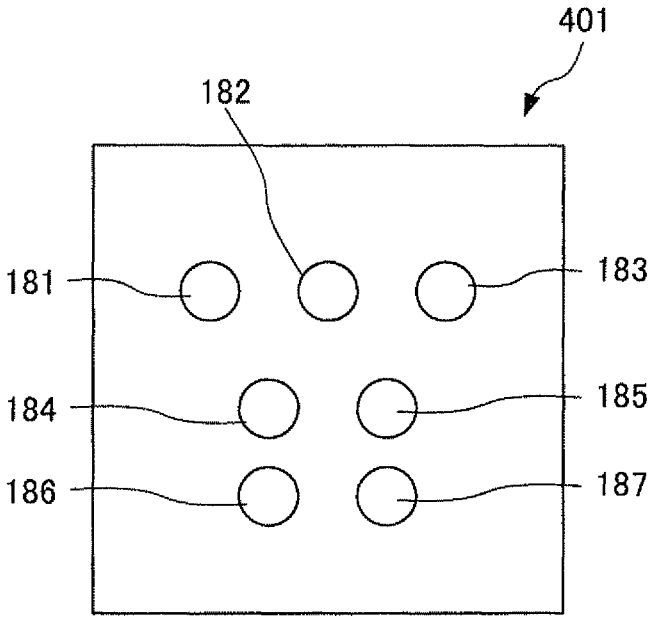


FIG. 5F

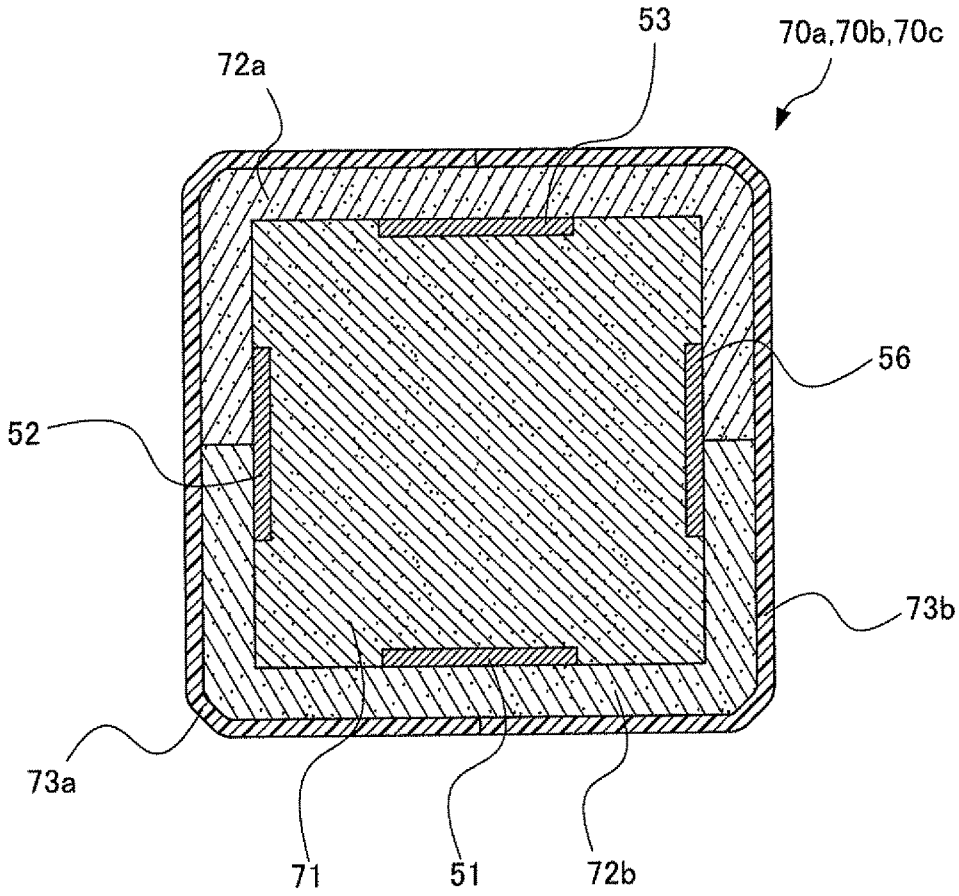


FIG. 5G

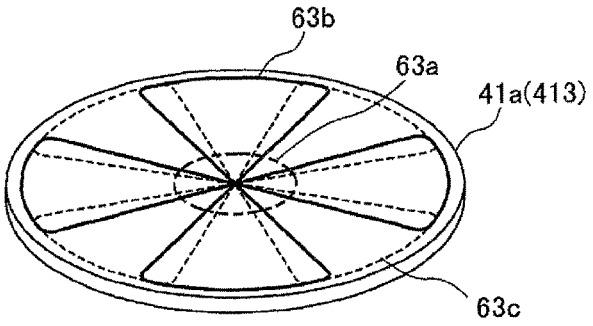

63b
63a
41a(413)
63c

FIG. 6G

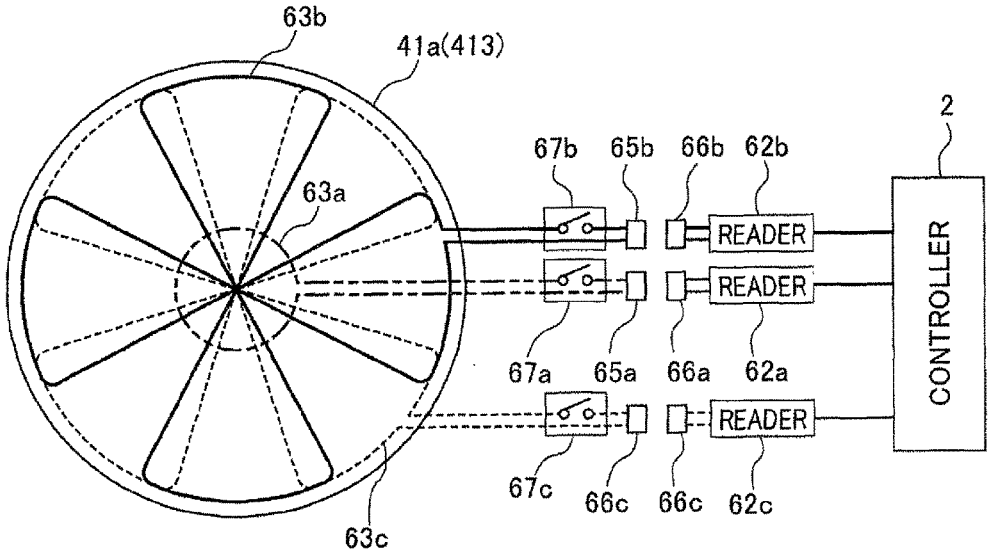

63b
41a(413)
63a
63c
67b
65b
66b
62b
READER
READER
READER
67a
65a
66a
62a
67c
66c
66c
62c
2
CONTROLLER

FIG. 6E

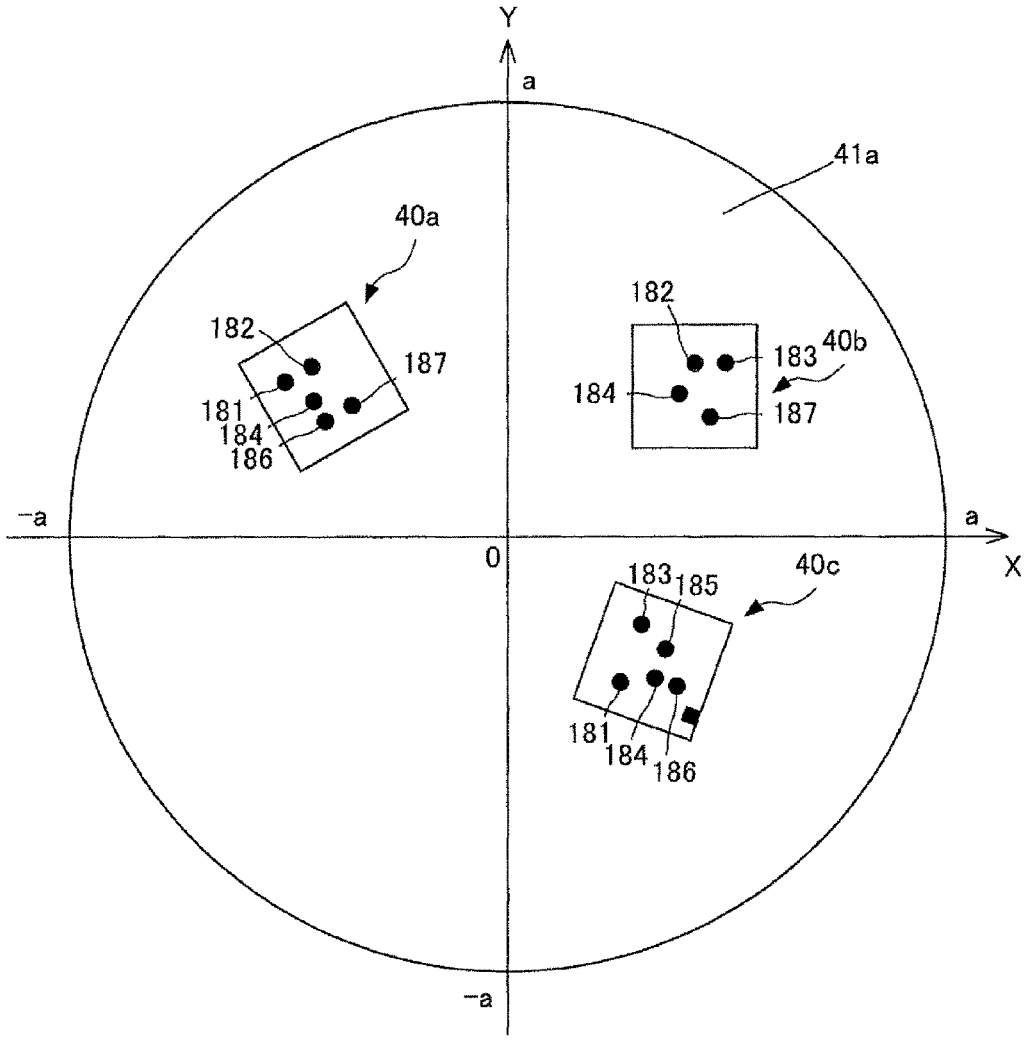

Y
a
41a
40a
182
187
181
184
186
182
183
40b
184
187
−a
a
0
X
183
185
40c
181
184
186
−a

FIG. 6F

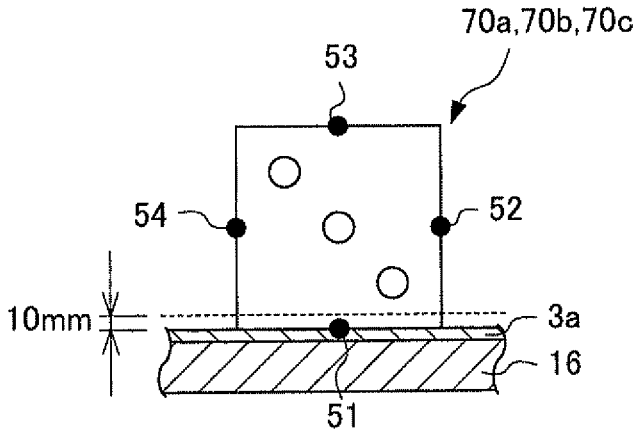


FIG. 7

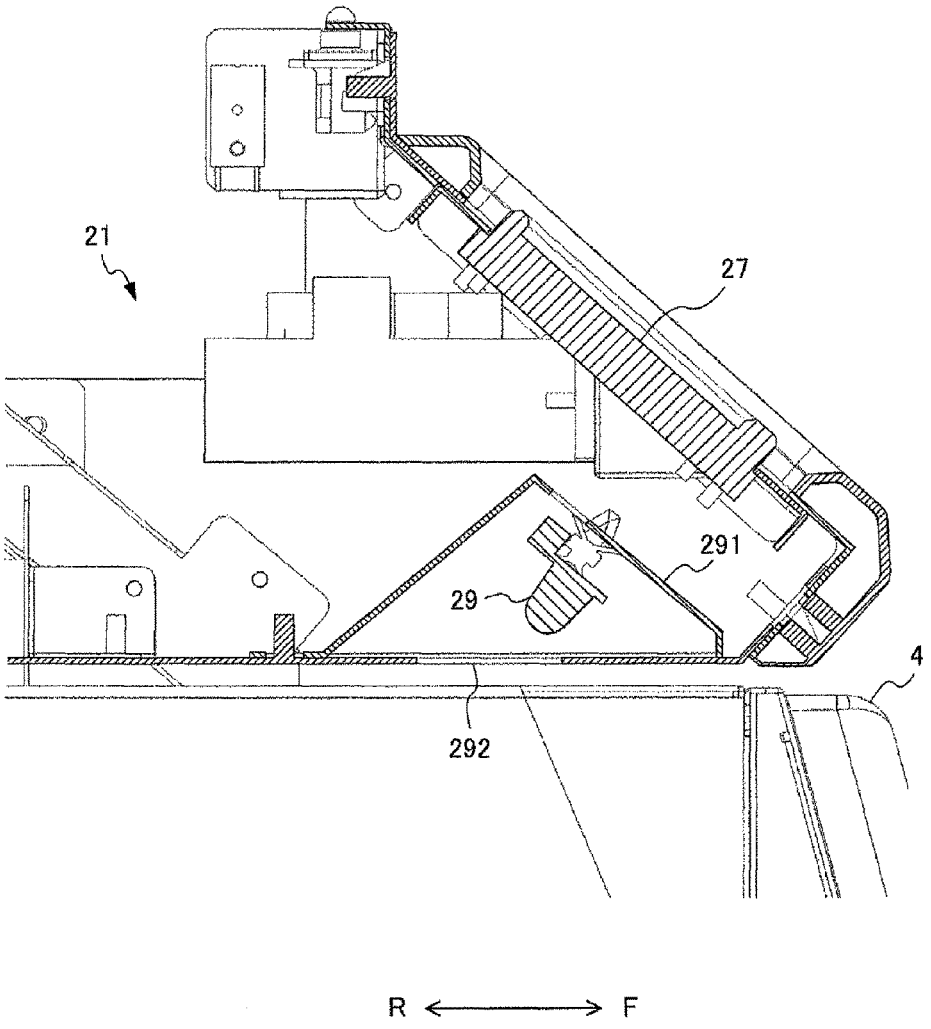


FIG. 7A

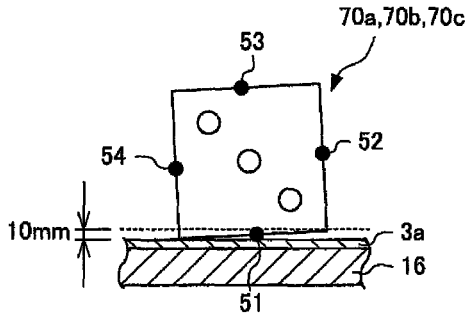

70a,70b,70c
53
52
54
10mm
3a
16
51

FIG. 8A

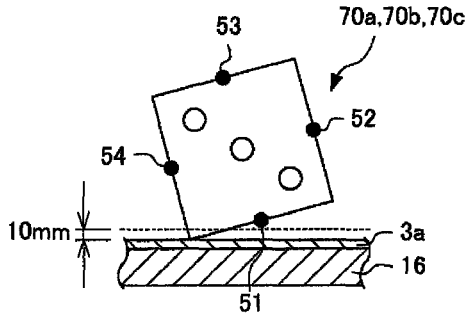

53
70a,70b,70c
52
54
10mm
3a
16
51

FIG. 7B

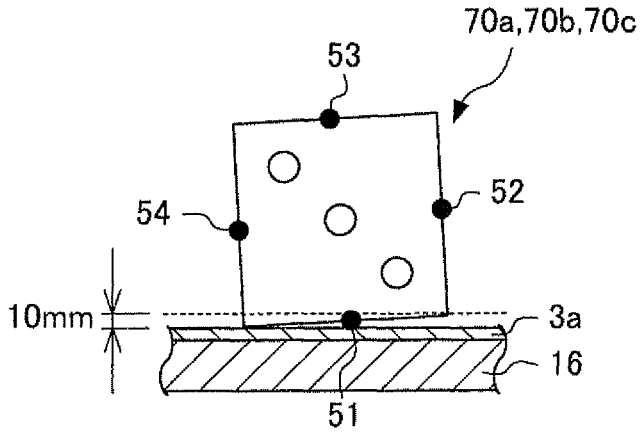

70a,70b,70c
53
52
54
10mm
3a
16
51

FIG. 8B

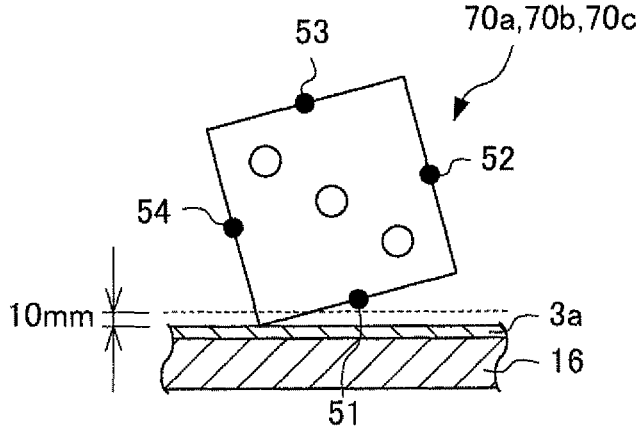

53
70a,70b,70c
52
54
10mm
3a
16
51

FIG. 7C

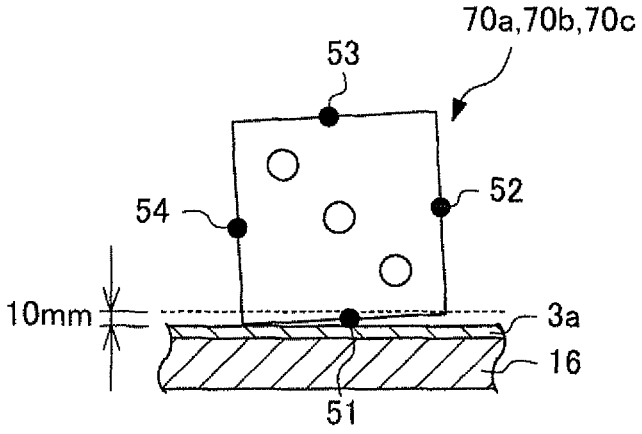

70a,70b,70c
53
52
54
10mm
3a
16
51

FIG. 8C

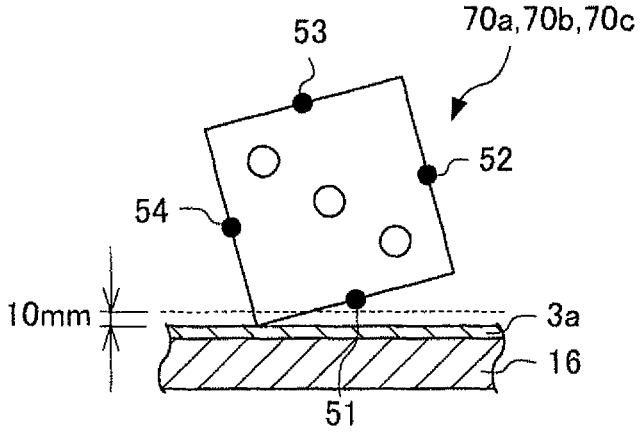

53
70a,70b,70c
52
54
10mm
3a
16
51

FIG. 7D

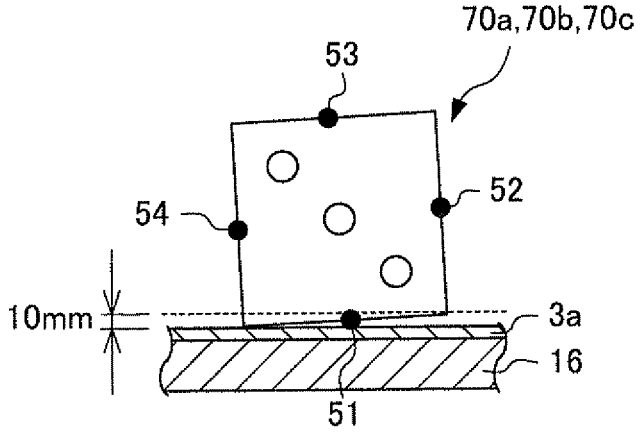

70a,70b,70c
53
52
54
10mm
3a
16
51

FIG. 8D

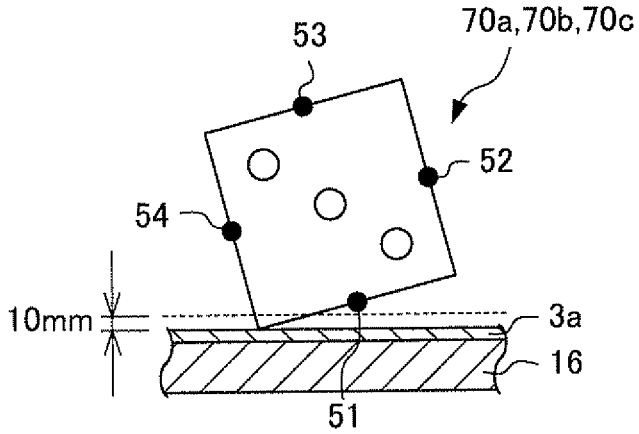
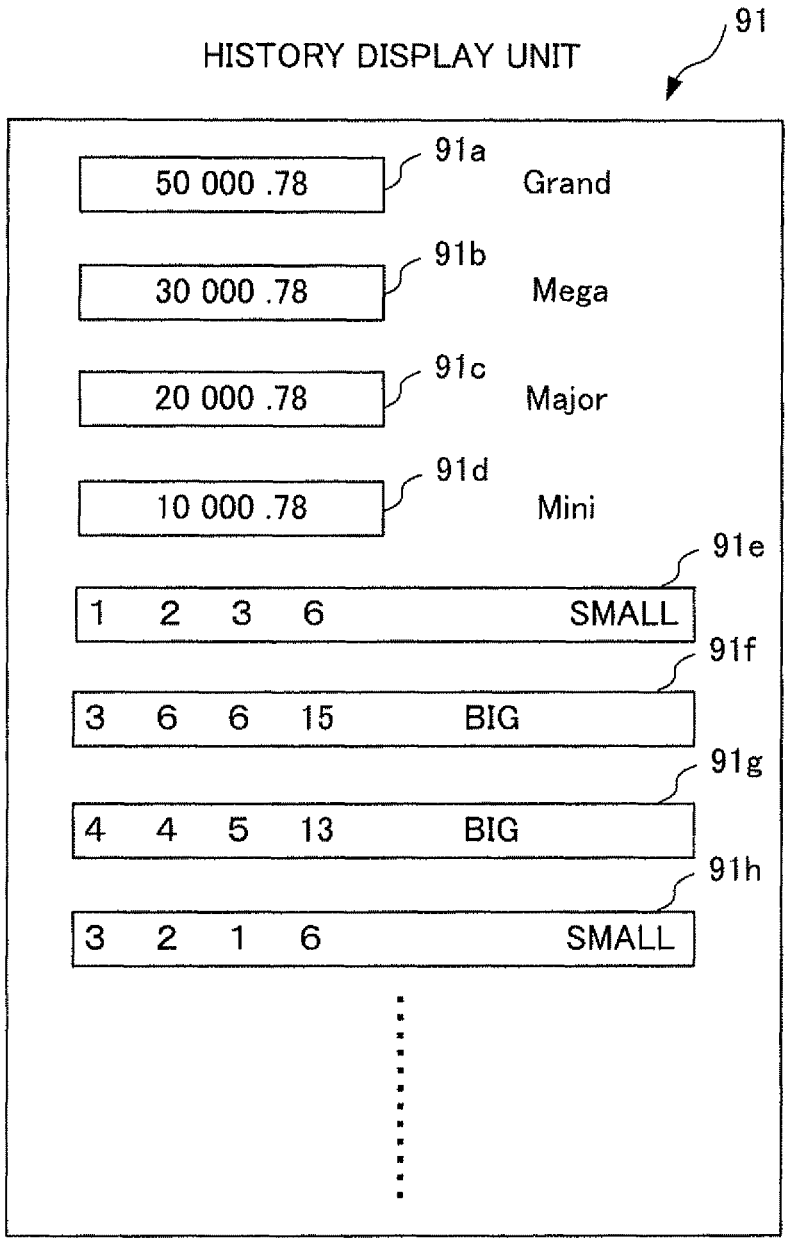

53
70a,70b,70c
52
54
10mm
3a
16
51

FIG. 7E


HISTORY DISPLAY UNIT
91
91a
50 000 .78
Grand
91b
30 000 .78
Mega
91c
20 000 .78
Major
91d
10 000 .78
Mini
91e
1 2 3 6
SMALL
91f
3 6 6 15
BIG
91g
4 4 5 13
BIG
91h
3 2 1 6
SMALL

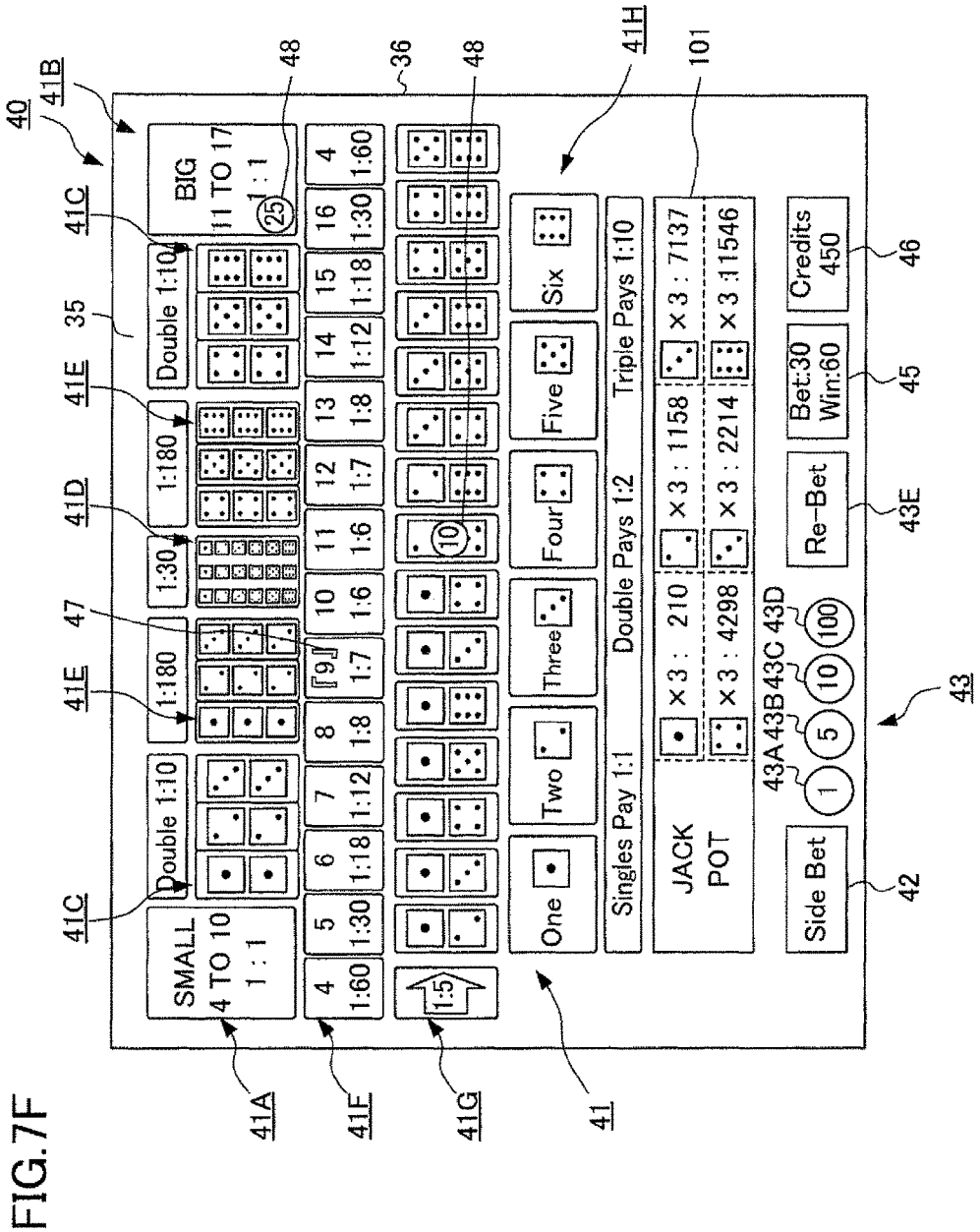

40
41B
41C
41E
35
41D
47
41E
41C
48
36
48
41H
101
SMALL
4 TO 10
1 : 1
Double 1:10
1:180
1:30
1:180
Double 1:10
BIG
11 TO 17
1 : 1
4 1:60
5 1:30
6 1:18
7 1:12
8 1:8
9 1:7
10 1:6
11 1:6
12 1:7
13 1:8
14 1:12
15 1:18
16 1:30
4 1:60
1:5
One
Two
Three
Four
Five
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK POT
× 3 : 210
× 3 : 1158
× 3 : 7137
× 3 : 4298
× 3 : 2214
× 3 : 11546
43A 43B 43C 43D
1
5
10
100
Side Bet
Re-Bet
Bet:30
Win:60
Credits
450
41A
41F
41G
41
42
43E
45
46
43

FIG.7F

FIG. 7G

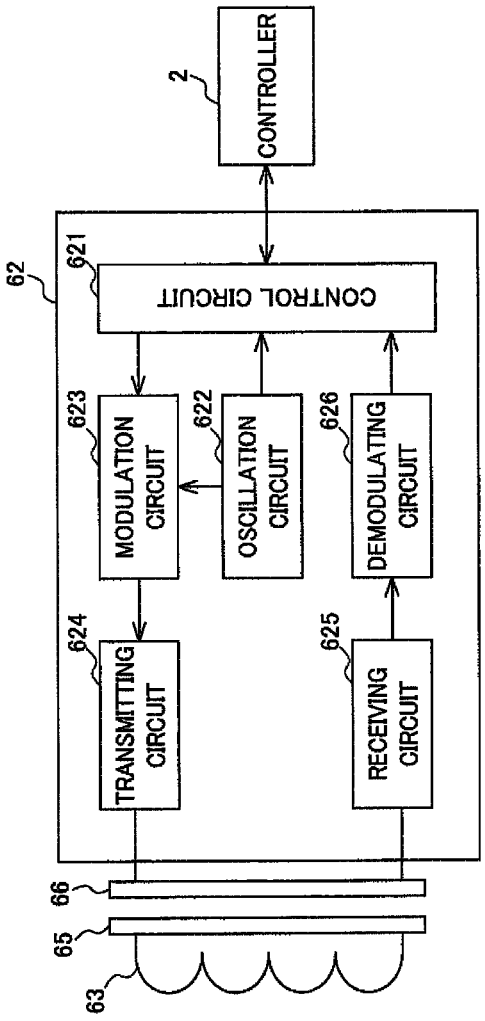
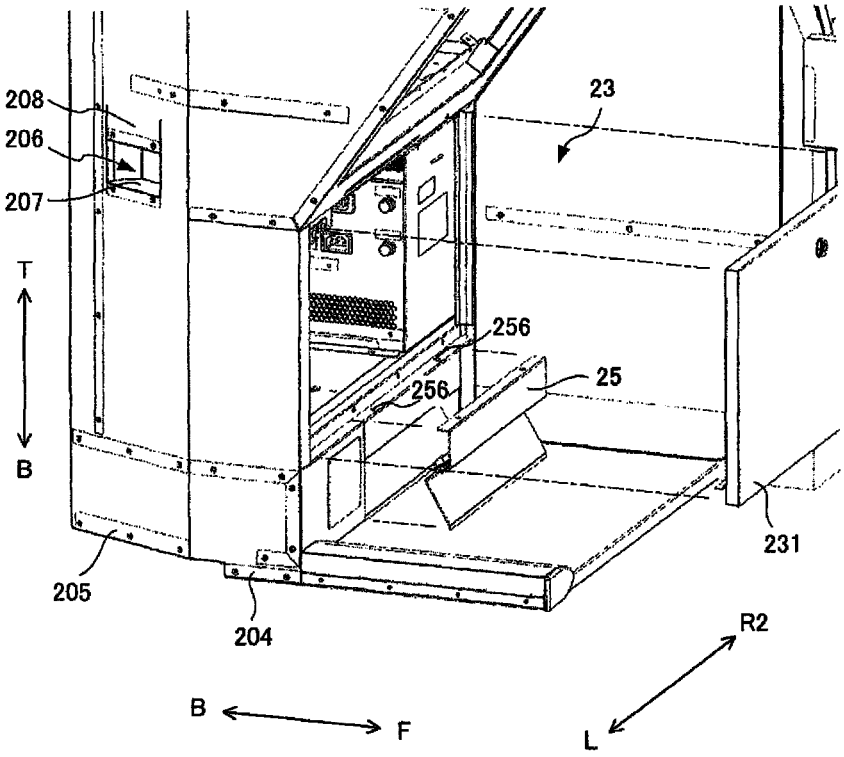

2
CONTROLLER
62
621
CONTROL CIRCUIT
623
MODULATION CIRCUIT
622
OSCILLATION CIRCUIT
626
DEMODULATING CIRCUIT
624
TRANSMITTING CIRCUIT
625
RECEIVING CIRCUIT
66
65
63

FIG. 8



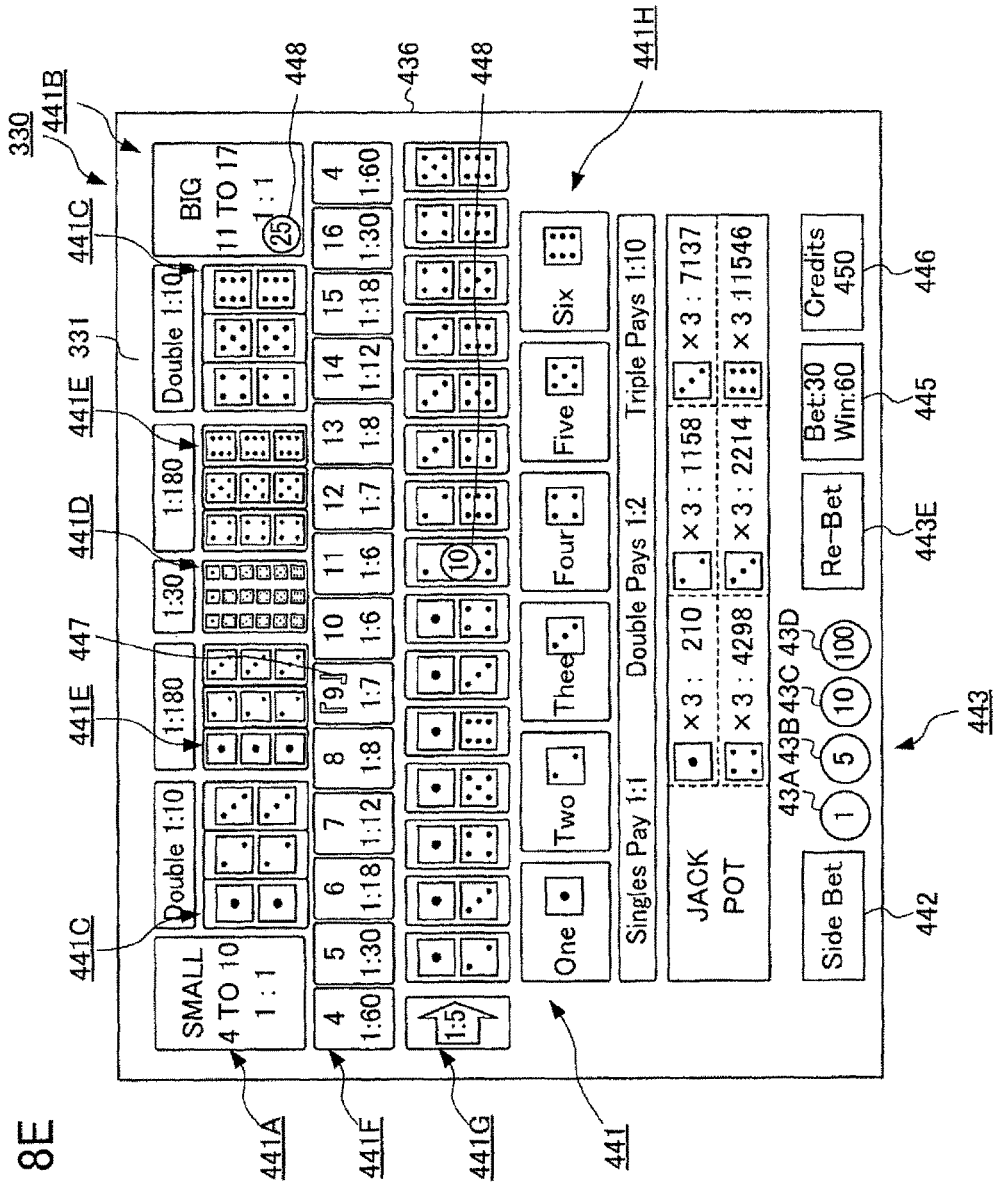
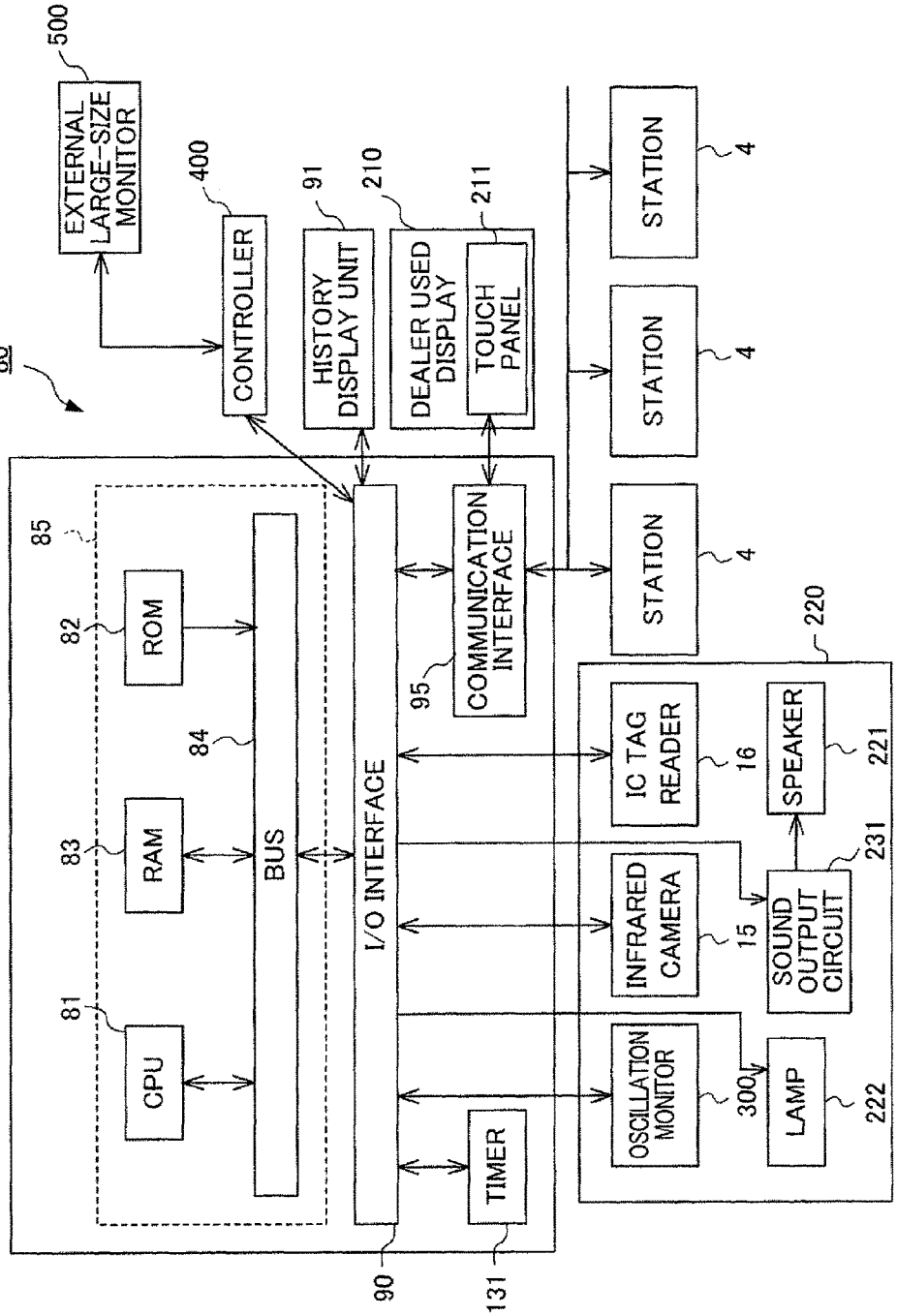

330
441B
441C
441E
331
441D
441E
447
441E
441C
448
436
448
441H
441A
441F
441G
441
443
442
446
445
443E
SMALL
4 TO 10
1 : 1
Double 1:10
1:180
1:30
1:180
Double 1:10
BIG
11 TO 17
1 : 1
25
4 1:60
5 1:30
6 1:18
7 1:12
8 1:8
9
10 1:6
11 1:6
12 1:7
13 1:8
14 1:12
15 1:18
16 1:30
4 1:60
1:5
10
One
Two
Three
Four
Five
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK POT
× 3 : 210
× 3 : 4298
× 3 : 1158
× 3 : 2214
× 3 : 7137
× 3 11546
43A 43B 43C 43D
Side Bet
1
5
10
100
Re-Bet
Bet:30
Win:60
Credits
450

FIG. 8E

FIG.8F


80
500
EXTERNAL LARGE-SIZE MONITOR
400
CONTROLLER
91
HISTORY DISPLAY UNIT
210
DEALER USED DISPLAY
211
TOUCH PANEL
STATION
4
STATION
4
STATION
4
85
82
ROM
84
BUS
95
COMMUNICATION INTERFACE
220
83
RAM
I/O INTERFACE
IC TAG READER
16
SPEAKER
221
81
CPU
INFRARED CAMERA
15
SOUND OUTPUT CIRCUIT
231
OSCILLATION MONITOR
300
LAMP
222
TIMER
90
131

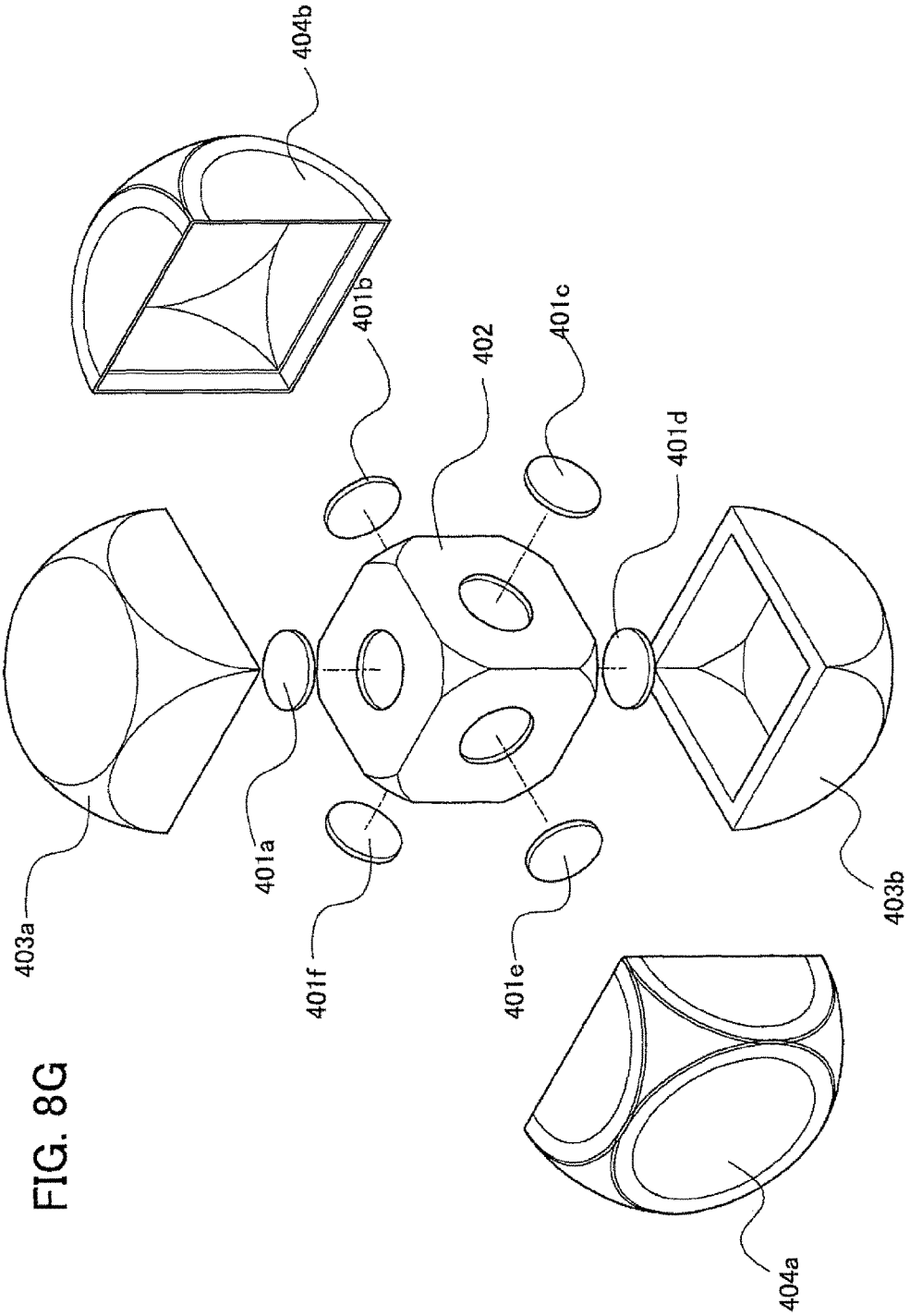


FIG. 8G

FIG. 9

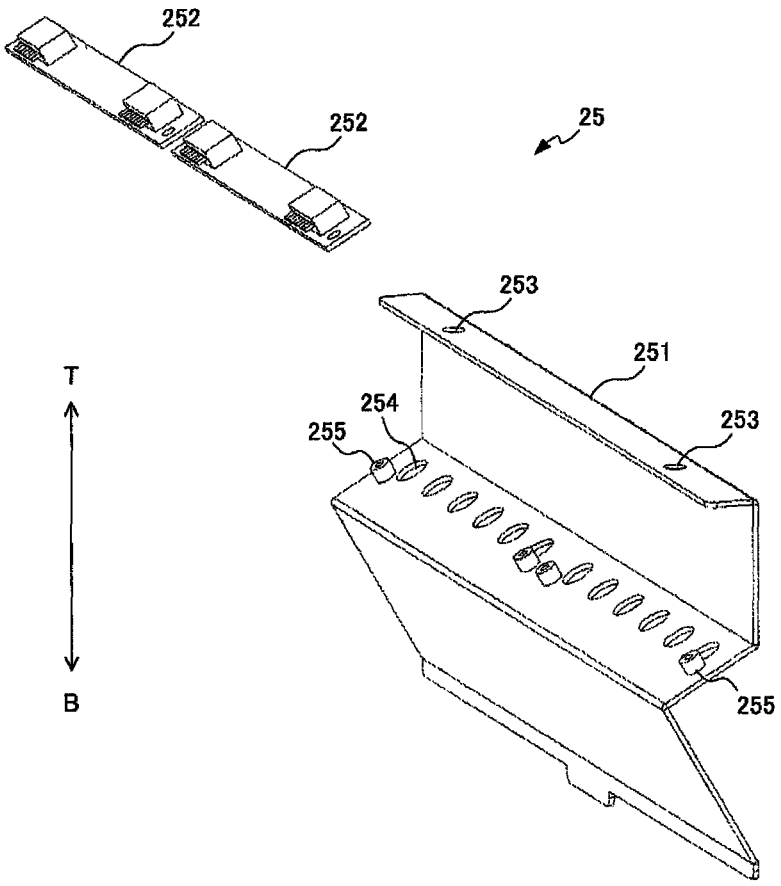


FIG. 9A

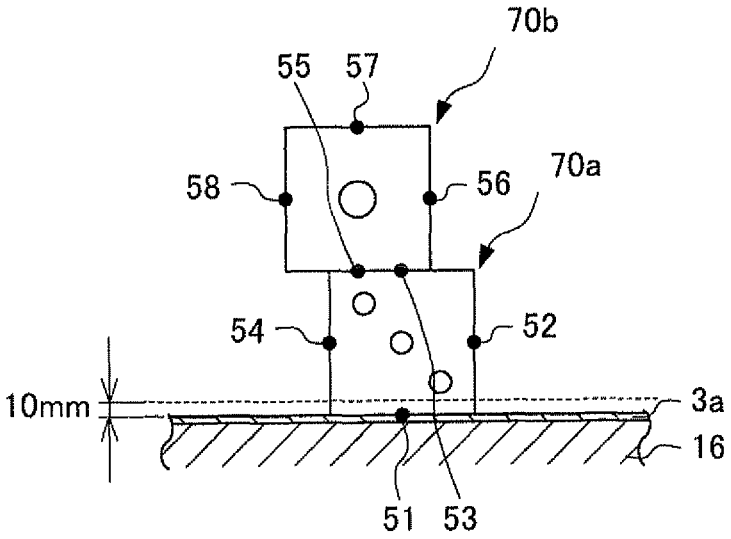


FIG. 10A

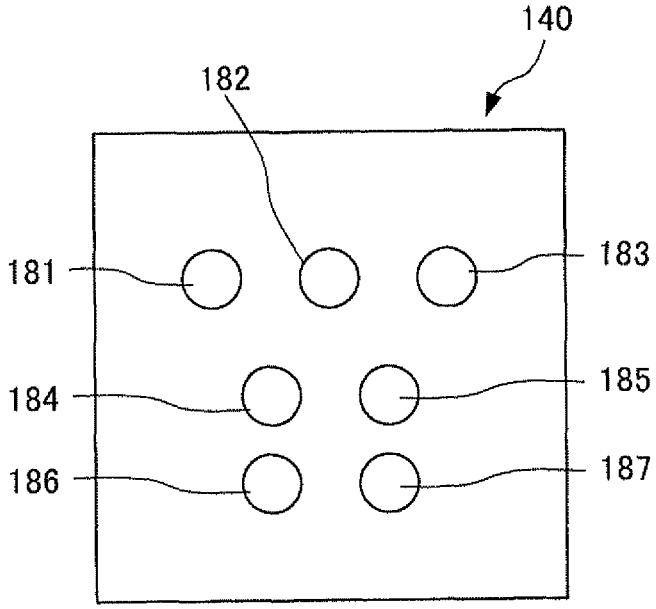


FIG. 9B

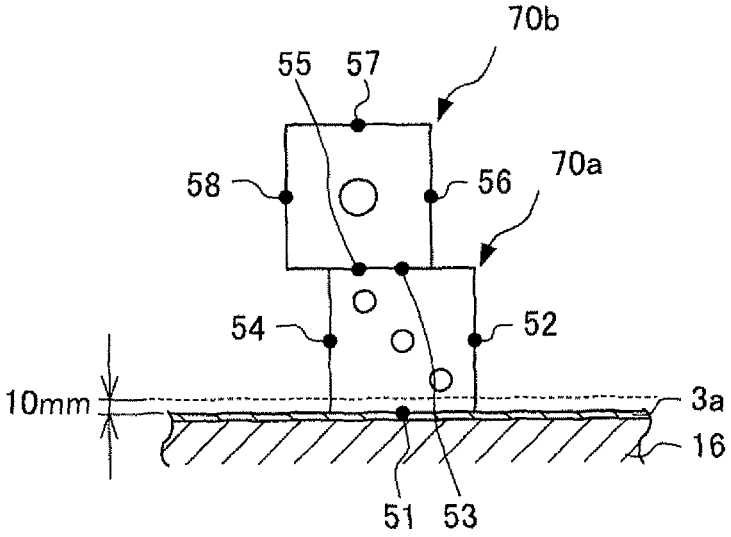


FIG. 10B

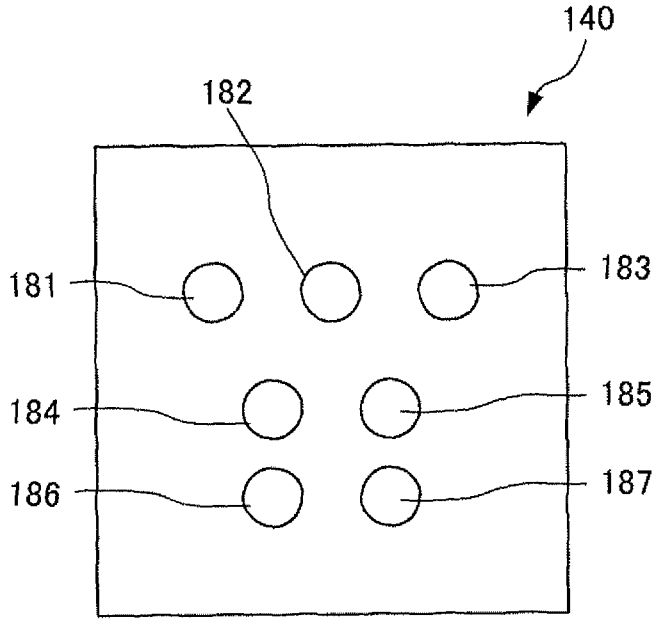


FIG. 9C

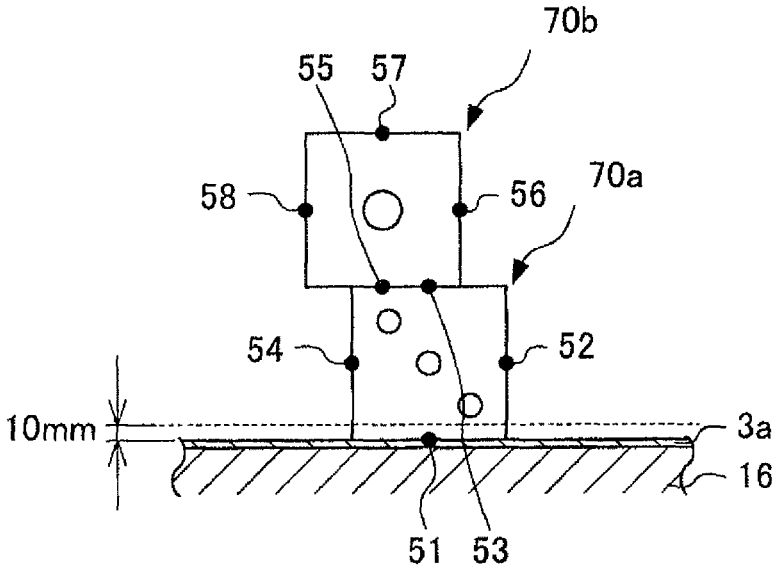


FIG. 10C

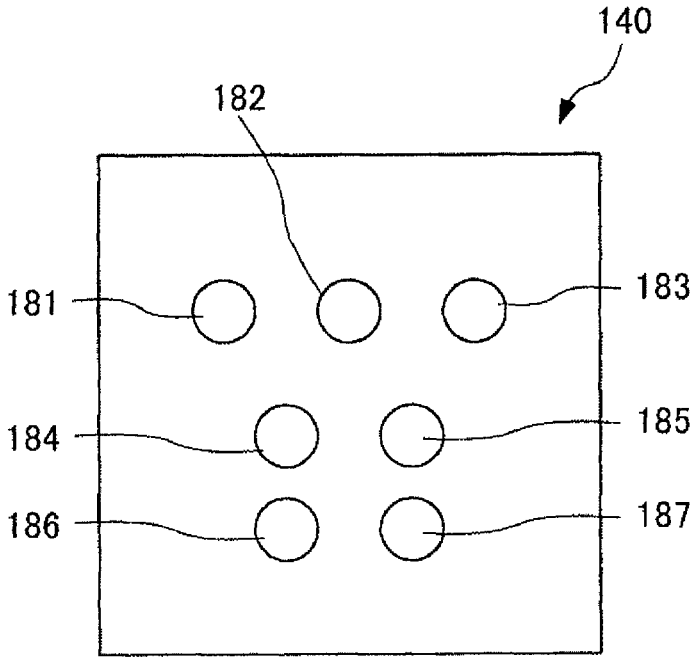


FIG. 9D

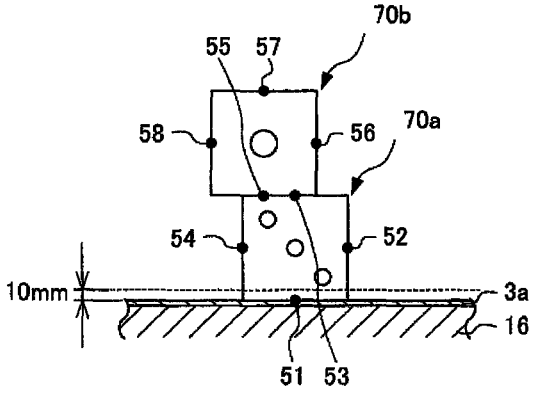


FIG. 10D

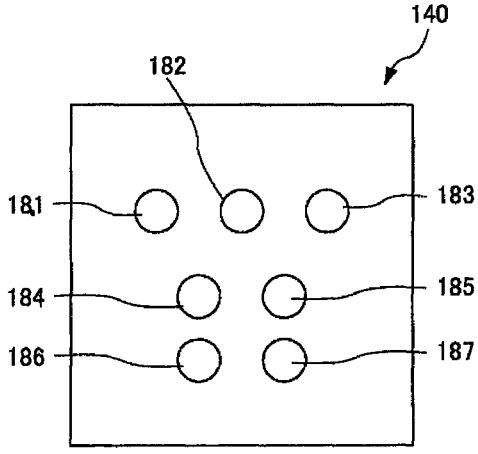
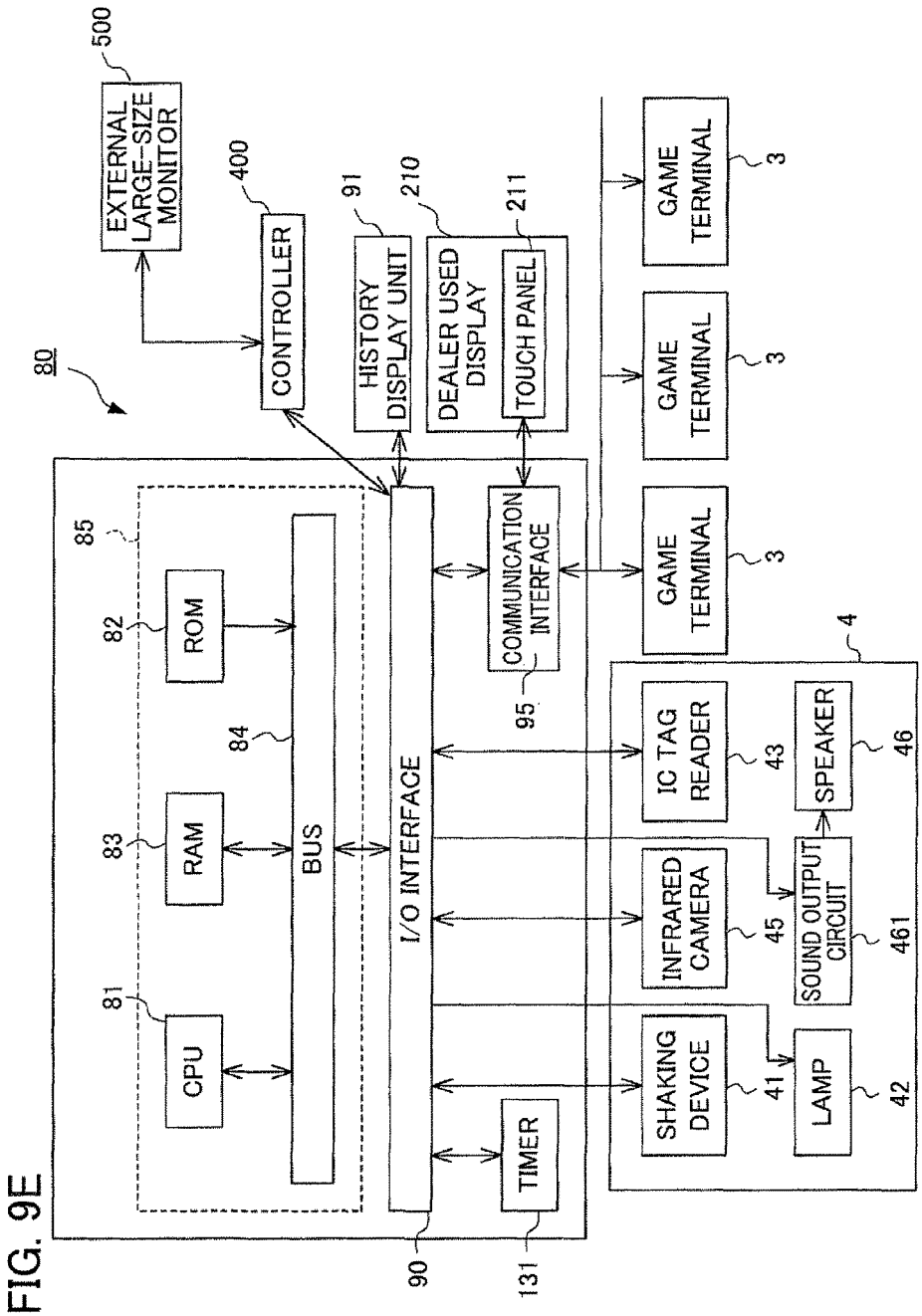


FIG. 9E


500
EXTERNAL LARGE-SIZE MONITOR
400
CONTROLLER
91
HISTORY DISPLAY UNIT
210
DEALER USED DISPLAY
211
TOUCH PANEL
80
85
82
ROM
84
BUS
83
RAM
81
CPU
I/O INTERFACE
COMMUNICATION INTERFACE
95
90
131
TIMER
GAME TERMINAL
3
GAME TERMINAL
3
GAME TERMINAL
3
GAME TERMINAL
3
4
IC TAG READER
43
SPEAKER
46
INFRARED CAMERA
45
SOUND OUTPUT CIRCUIT
461
SHAKING DEVICE
41
LAMP
42

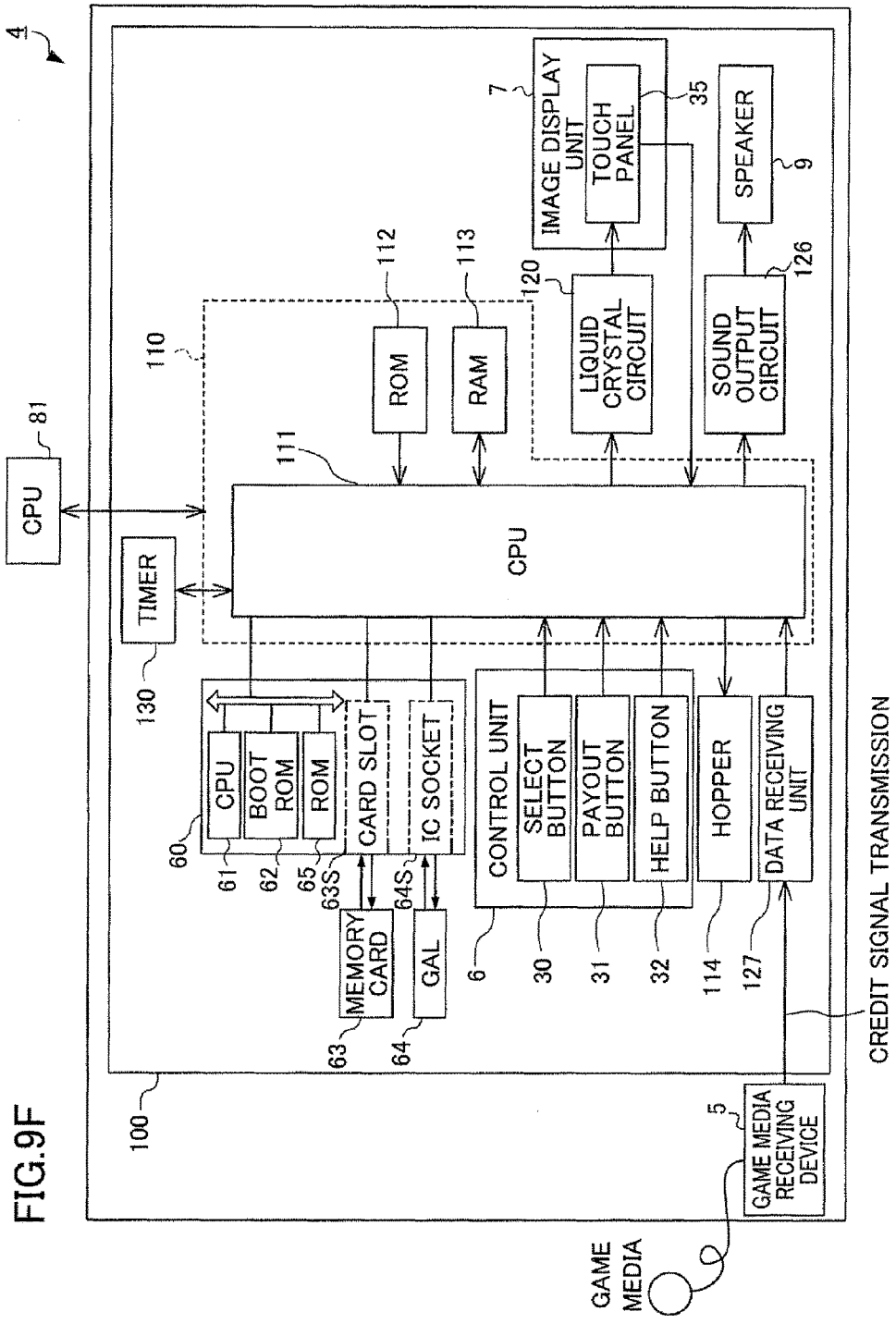

4
CPU
81
TIMER
130
110
111
CPU
ROM
112
RAM
113
120
LIQUID CRYSTAL CIRCUIT
SOUND OUTPUT CIRCUIT
126
IMAGE DISPLAY UNIT
7
TOUCH PANEL
35
SPEAKER
9
CPU
BOOT ROM
ROM
CARD SLOT
IC SOCKET
60
61
62
65
63S
64S
MEMORY CARD
GAL
63
64
CONTROL UNIT
SELECT BUTTON
PAYOUT BUTTON
HELP BUTTON
HOPPER
DATA RECEIVING UNIT
6
30
31
32
114
127
CREDIT SIGNAL TRANSMISSION
100
5
GAME MEDIA RECEIVING DEVICE
GAME MEDIA

FIG.9F

FIG. 9G

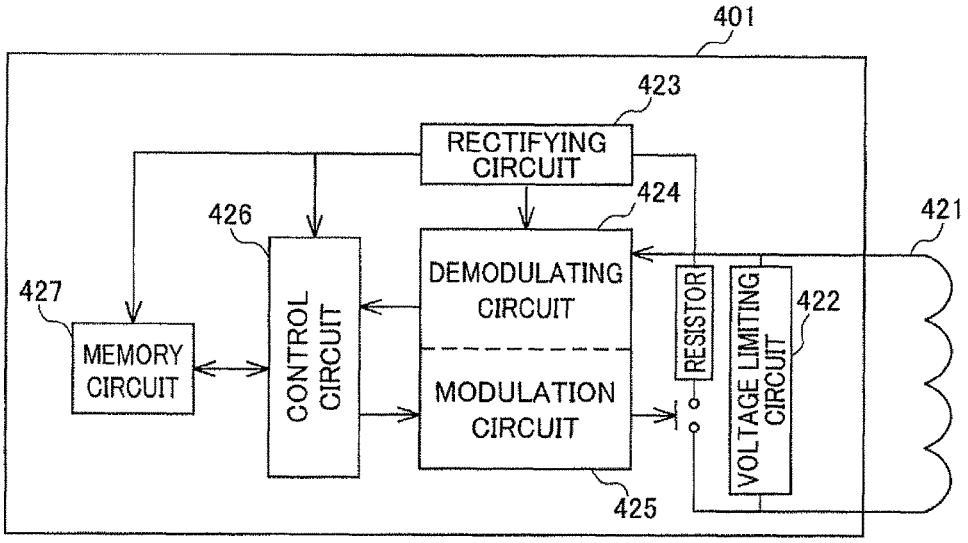
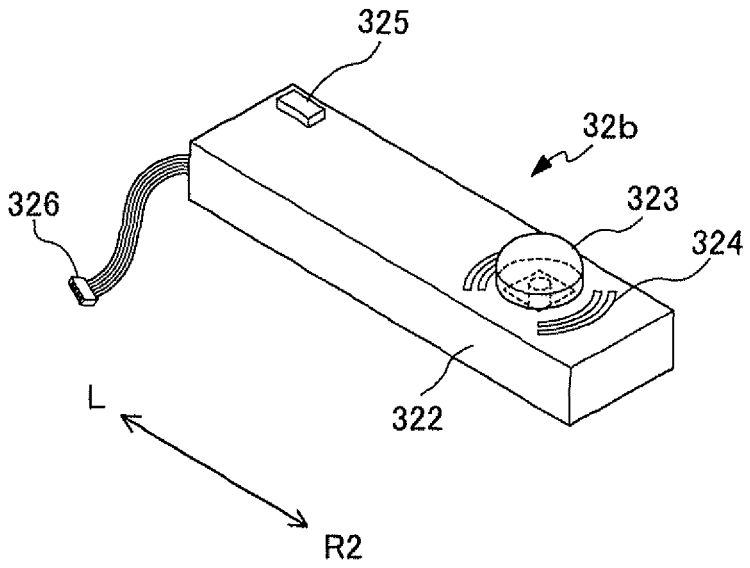

401
423
RECTIFYING CIRCUIT
424
426
421
DEMODULATING CIRCUIT
427
RESISTOR
422
VOLTAGE LIMITING CIRCUIT
MEMORY CIRCUIT
CONTROL CIRCUIT
MODULATION CIRCUIT
425

FIG. 10



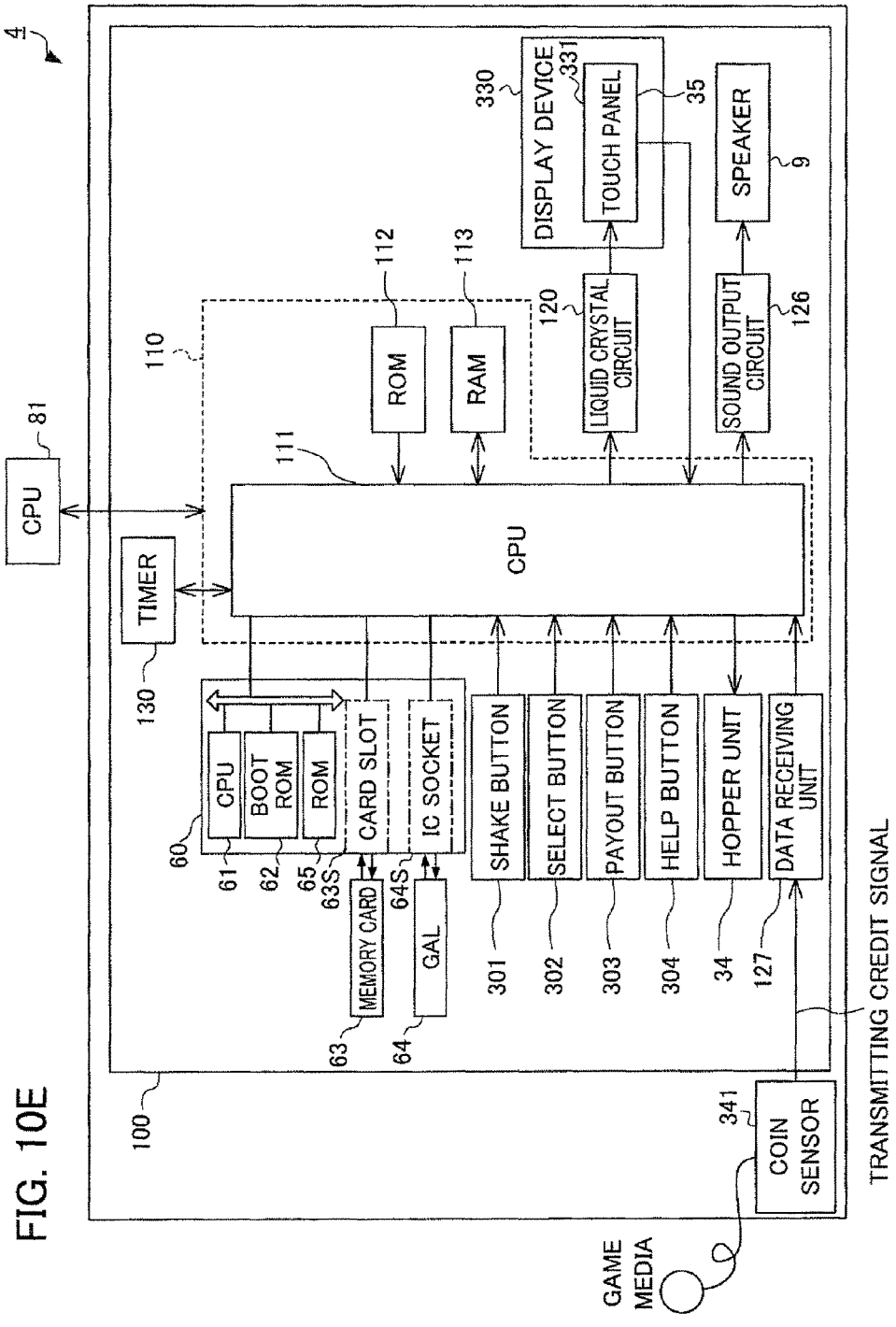

4
CPU
81
TIMER
130
110
111
CPU
ROM
112
RAM
113
LIQUID CRYSTAL CIRCUIT
120
DISPLAY DEVICE
330
TOUCH PANEL
331
35
SOUND OUTPUT CIRCUIT
126
SPEAKER
9
CPU
BOOT ROM
ROM
60
61
62
65
CARD SLOT
63S
IC SOCKET
64S
MEMORY CARD
63
GAL
64
SHAKE BUTTON
301
SELECT BUTTON
302
PAYOUT BUTTON
303
HELP BUTTON
304
HOPPER UNIT
34
DATA RECEIVING UNIT
127
100
341
COIN SENSOR
GAME MEDIA
TRANSMITTING CREDIT SIGNAL

FIG. 10E

FIG.10F

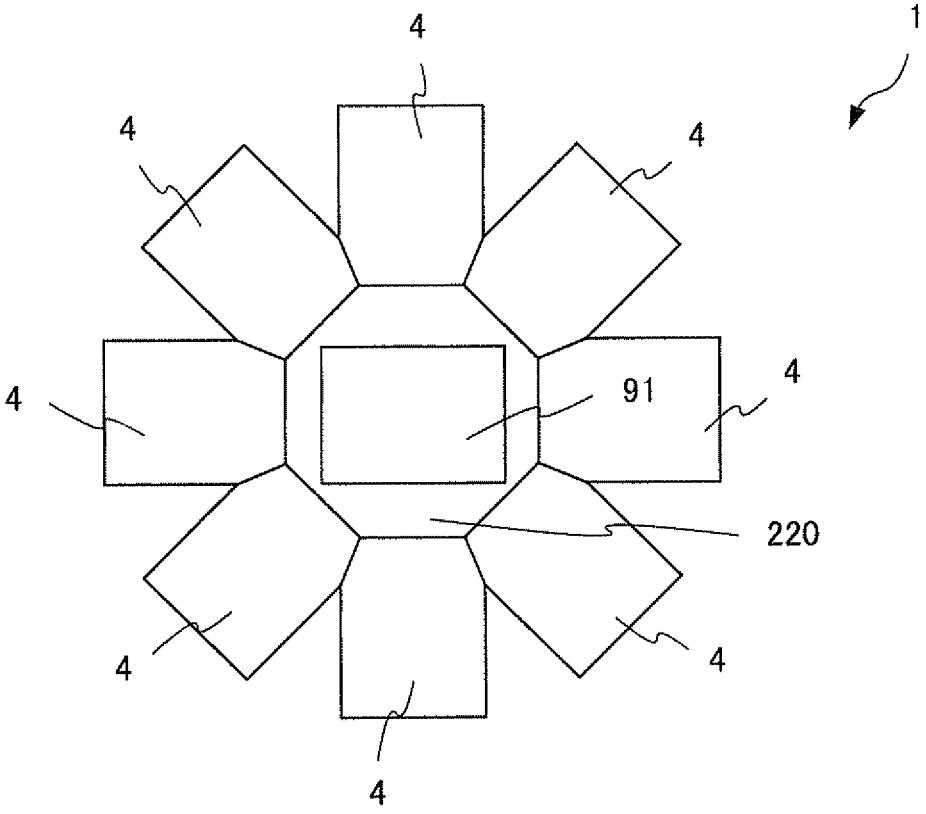


FIG. 10G

WIRELESS IC TAG MEMORY INFORMATION SUMMARY (DIE: RED)

DIE FACE	UNIQUE ID	MEMORY ADDRESS						
		00	01	02	03	04	05	06
1	aaaa	RED:6	0EA0A6FB					xxxxxxxx
2	bbbb		RED:5	9CD765BB				xxxxxxxx
3	cccc			RED:4	04F168BA			xxxxxxxx
4	dddd				RED:3	45B7A9BF		xxxxxxxx
5	eeee					RED:2	8BA07D02	xxxxxxxx
6	ffff	FC7A4685					RED:1	xxxxxxxx

FIG. 11

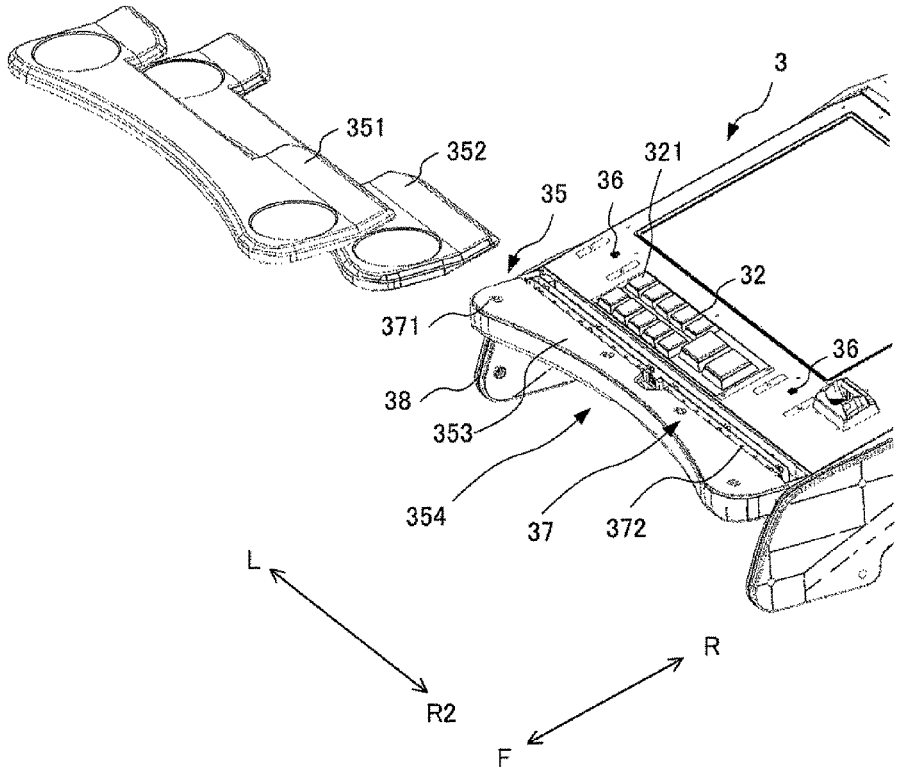


FIG. 11A

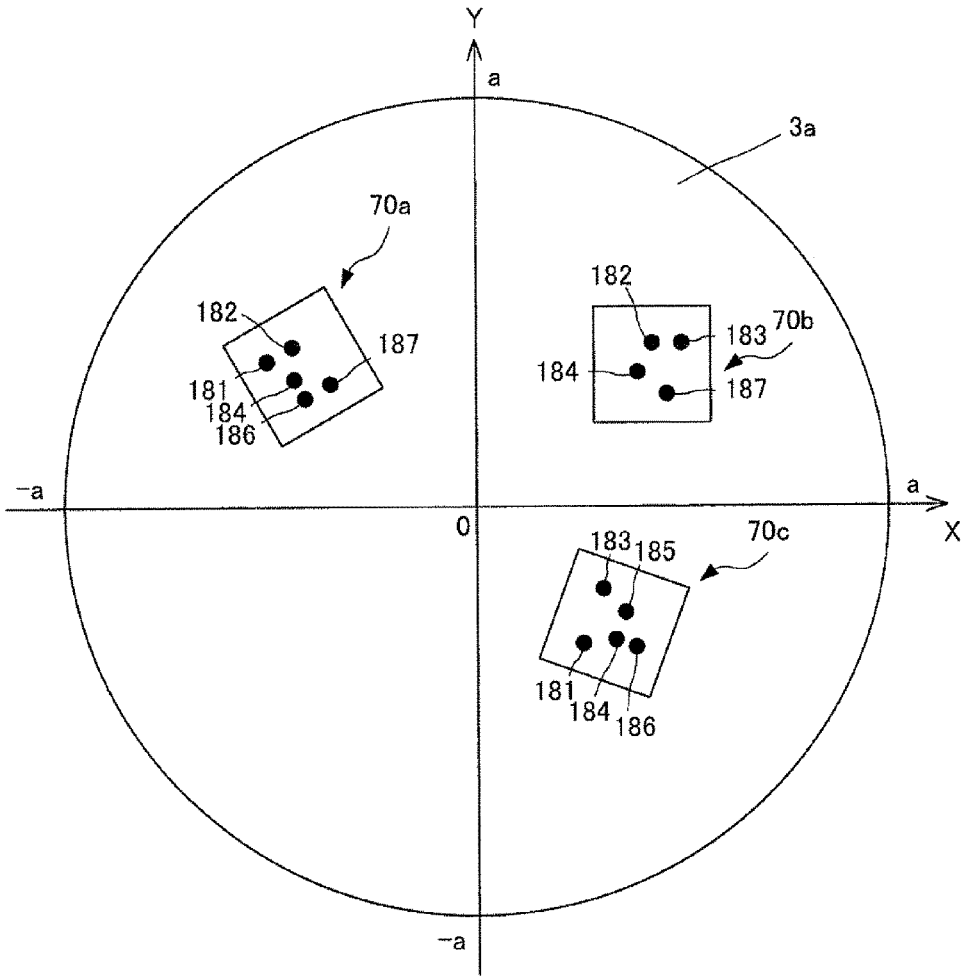

Y
a
3a
70a
182
187
181
184
186
182
183
70b
184
187
−a
a
0
X
183
185
70c
181
184
186
−a

FIG. 11B

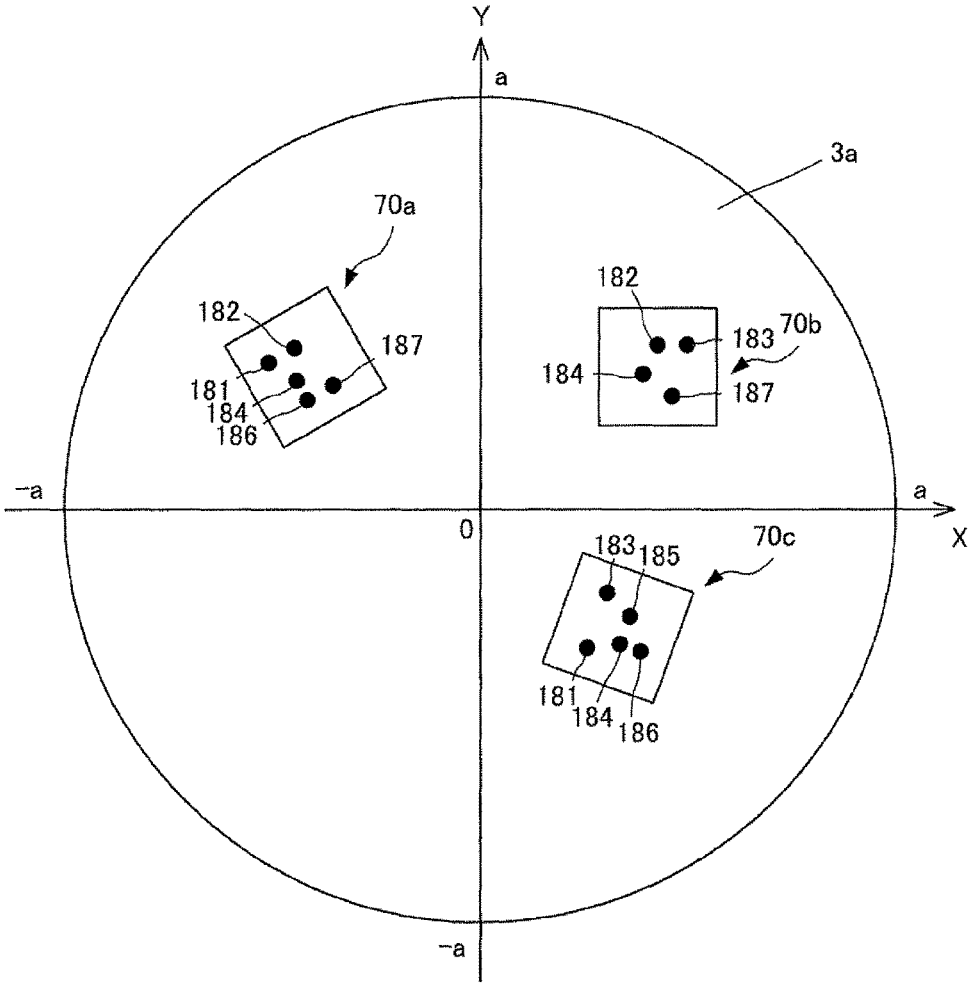

Y
a
3a
70a
182
187
181
184
186
182
183
70b
184
187
−a
a
0
X
183
185
70c
181
184
186
−a

FIG. 11C

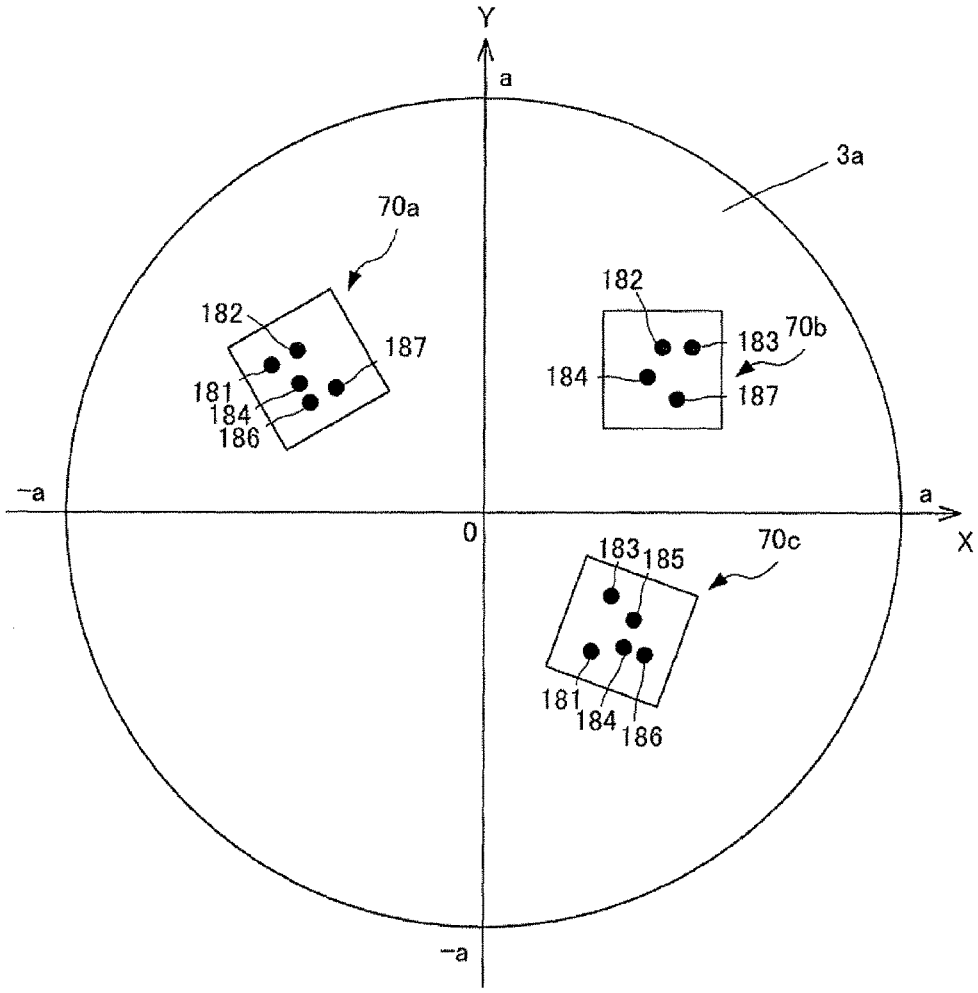

Y
a
3a
70a
182
187
181
184
186
182
183
70b
184
187
−a
a
0
X
183
185
70c
181
184
186
−a

FIG. 11D

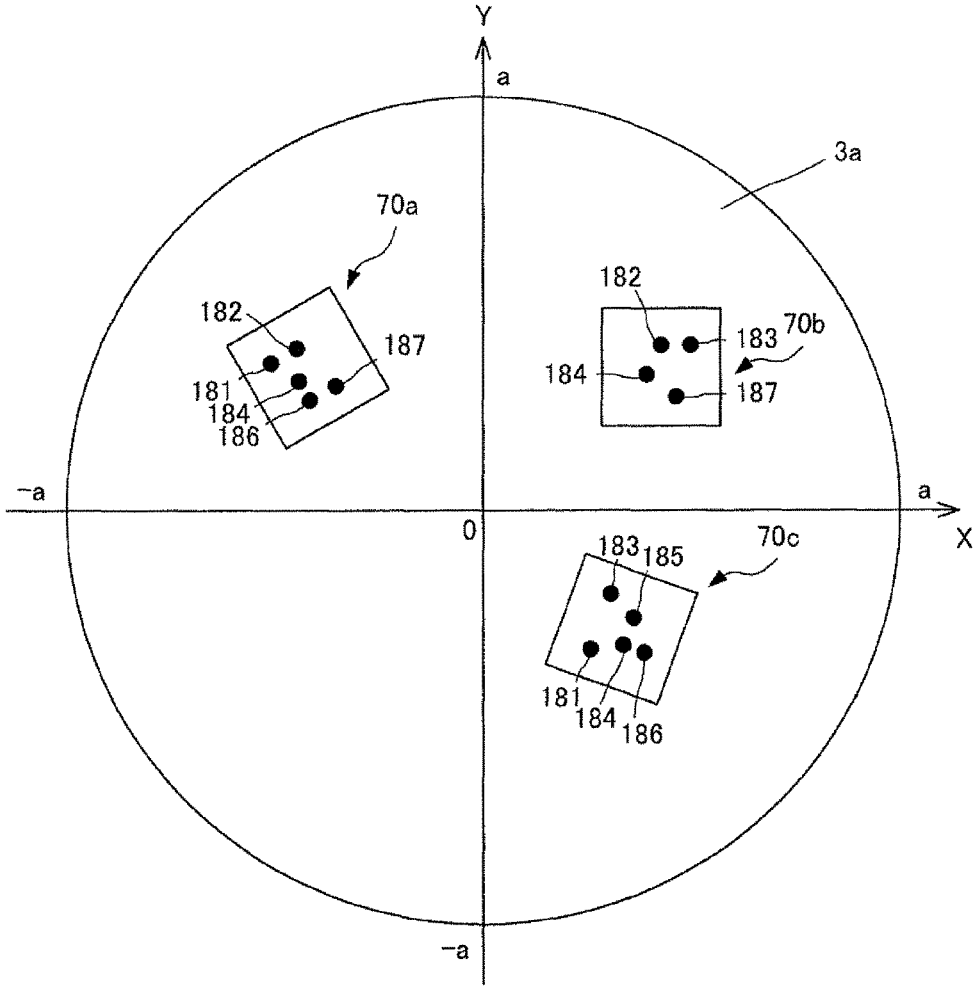

Y
a
3a
70a
182
187
181
184
186
182
183
70b
184
187
−a
a
0
X
183
185
70c
181
184
186
−a

FIG. 11E

INSTRUCTION IMAGE DISPLAY DETERMINATION TABLE

DEALER'S LEVEL	BET START INSTRUCTION IMAGE	BET END INSTRUCTION IMAGE
HIGH LEVEL	×	×
INTERMEDIATE LEVEL	×	○
LOW LEVEL	○	○

FIG. 12E

BET EXISTENCE DETERMINATION TABLE

	STATION NUMBER					
	1	2	3	4	5	
BET	A	P	P	A	A	.....
VALUE	—	10	5	—	15	

FIG. 13E

IC TAG DATA TABLE

IDENTIFICATION DATA 1		IDENTIFICATION DATA 2		IDENTIFICATION DATA 3	
TYPE	NUMBER OF DOTS	TYPE	NUMBER OF DOTS	TYPE	NUMBER OF DOTS
RED	6	WHITE	3	BLACK	5

FIG. 11F

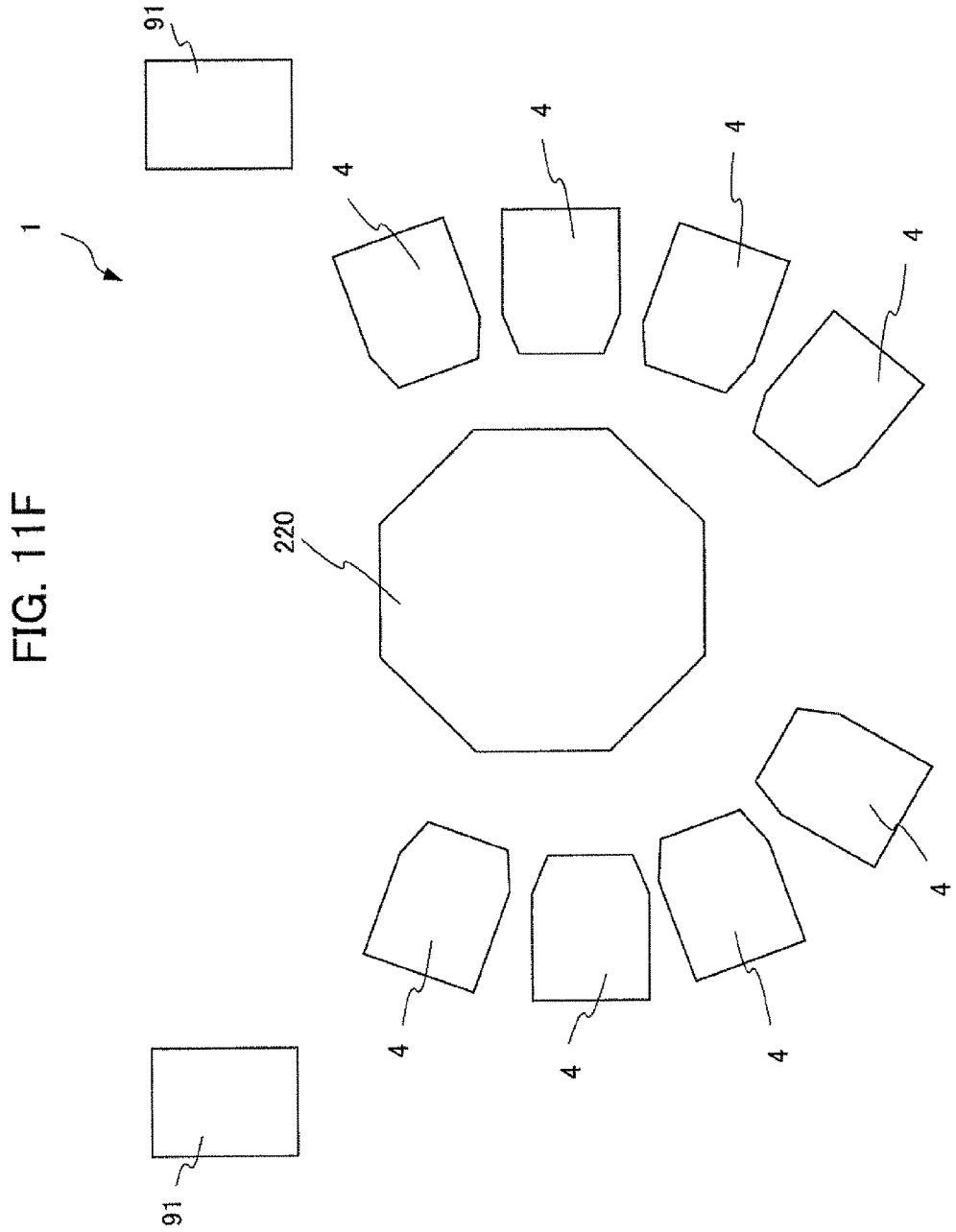


FIG. 11G

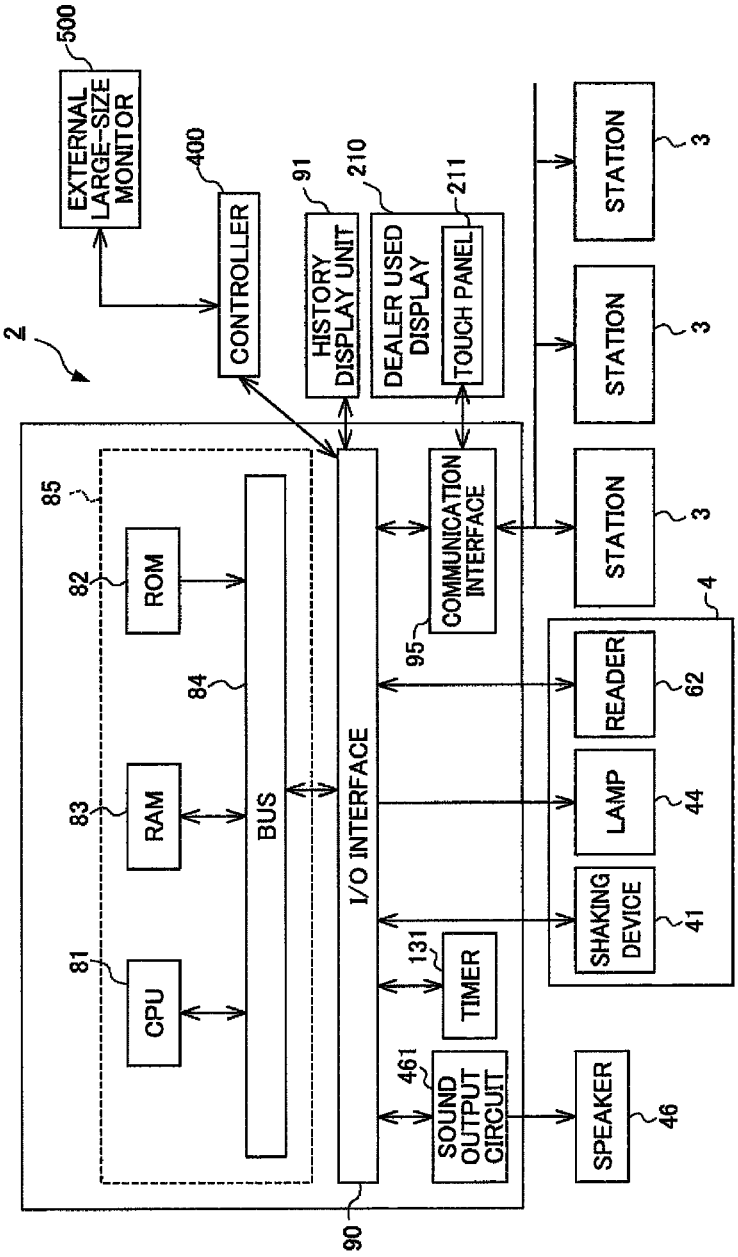

500
EXTERNAL LARGE-SIZE MONITOR
400
CONTROLLER
91
HISTORY DISPLAY UNIT
210
DEALER USED DISPLAY
211
TOUCH PANEL
2
STATION
3
STATION
3
STATION
3
85
82
ROM
84
BUS
95
COMMUNICATION INTERFACE
4
READER
62
83
RAM
I/O INTERFACE
LAMP
44
SHAKING DEVICE
41
81
CPU
131
TIMER
461
SOUND OUTPUT CIRCUIT
SPEAKER
46
90

FIG. 12

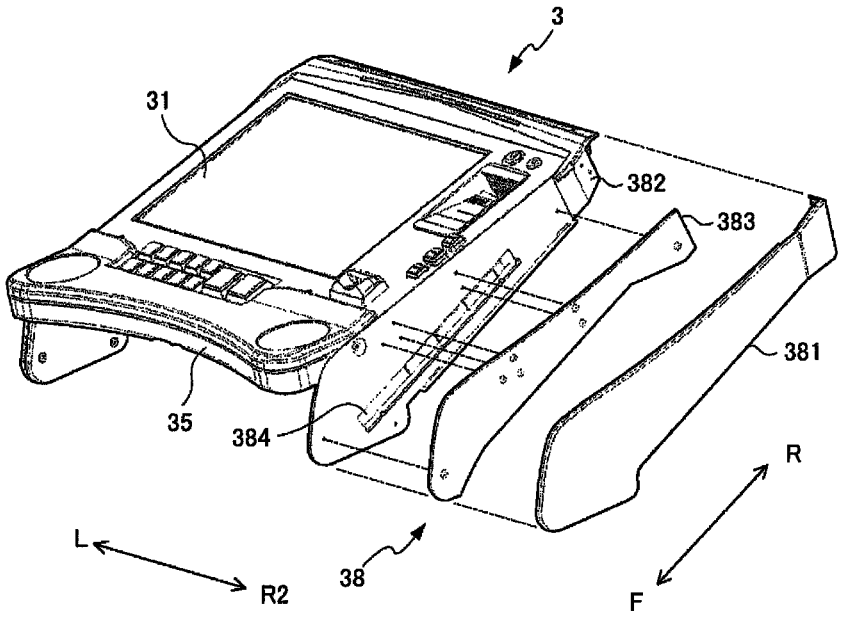


FIG. 12A

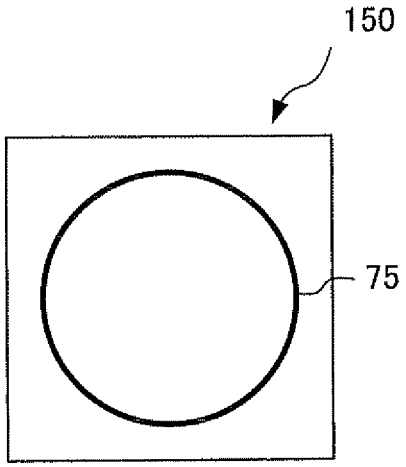


FIG. 13A

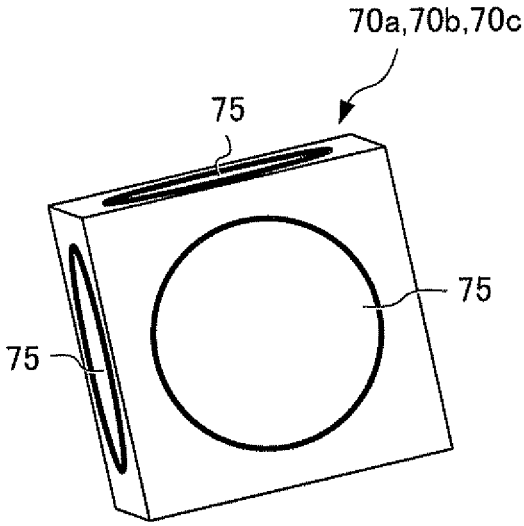


FIG. 12B

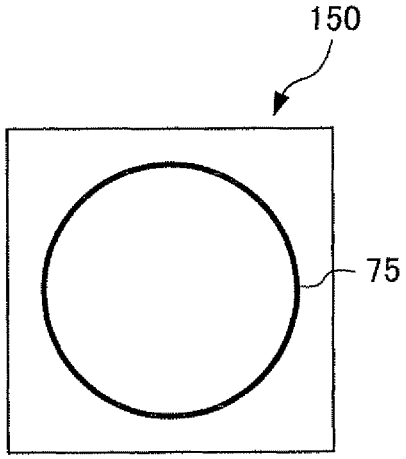


FIG. 13B

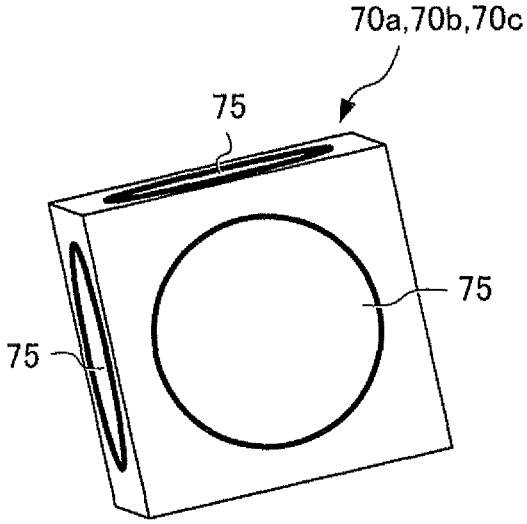


FIG. 12C

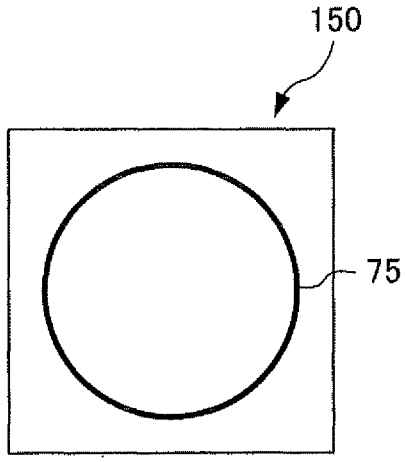


FIG. 13C

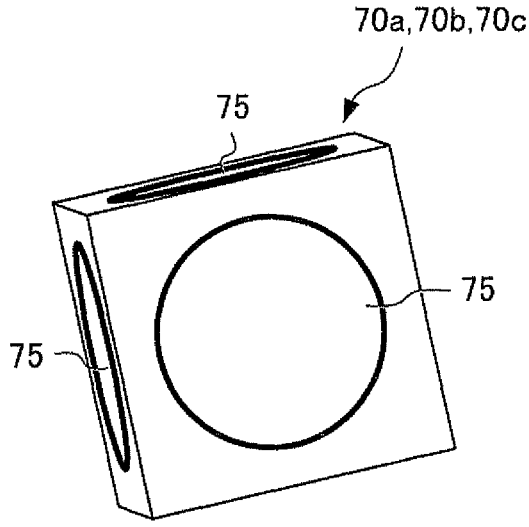


FIG. 12D

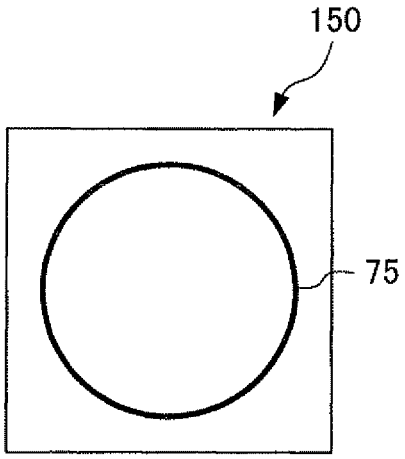


FIG. 13D

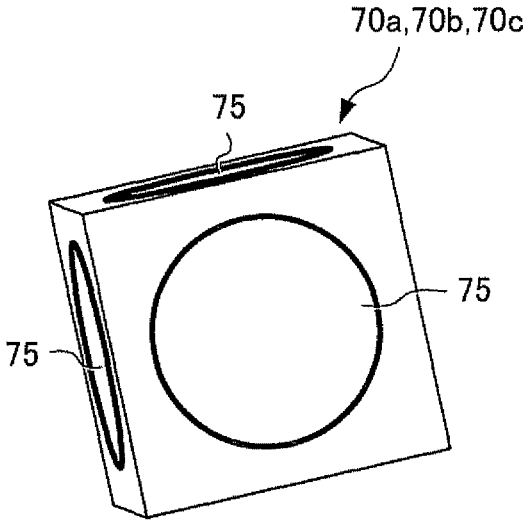


FIG. 12F

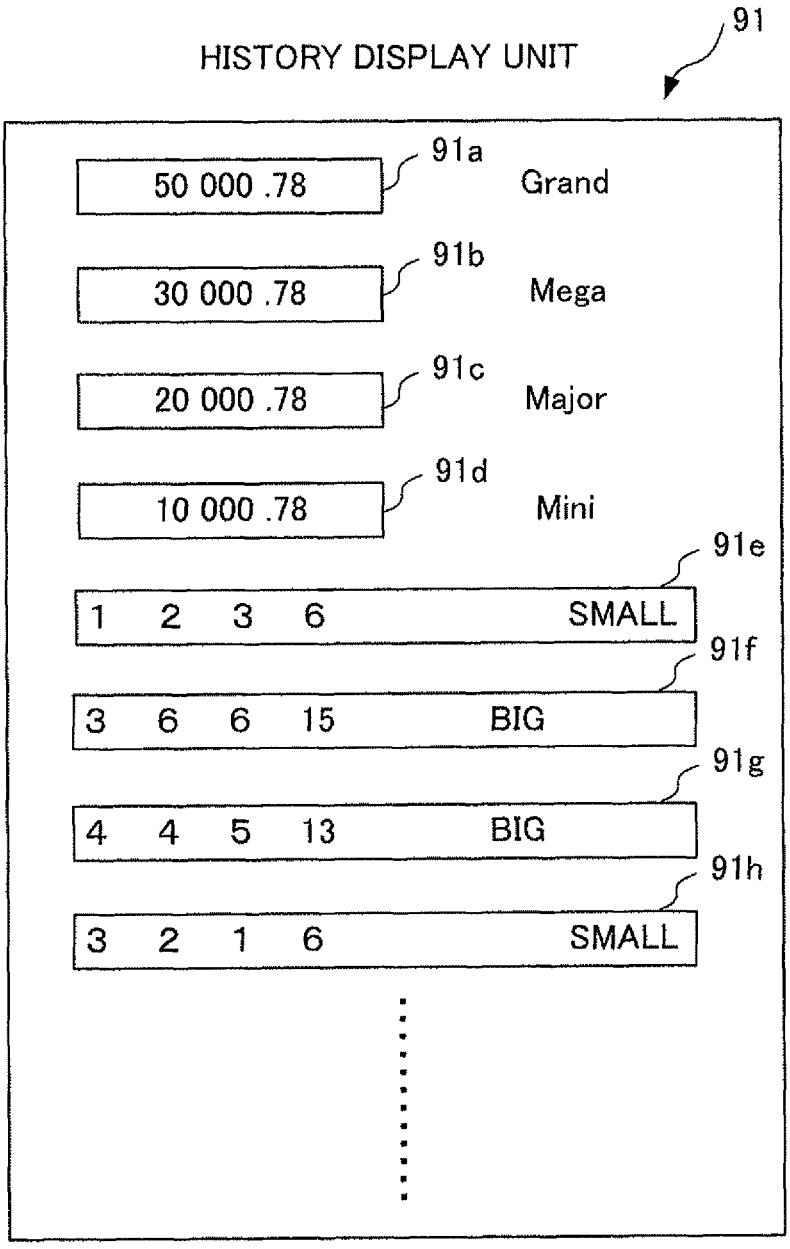

91
HISTORY DISPLAY UNIT
91a
50 000 .78
Grand
91b
30 000 .78
Mega
91c
20 000 .78
Major
91d
10 000 .78
Mini
91e
1 2 3 6
SMALL
91f
3 6 6 15
BIG
91g
4 4 5 13
BIG
91h
3 2 1 6
SMALL

FIG. 12G

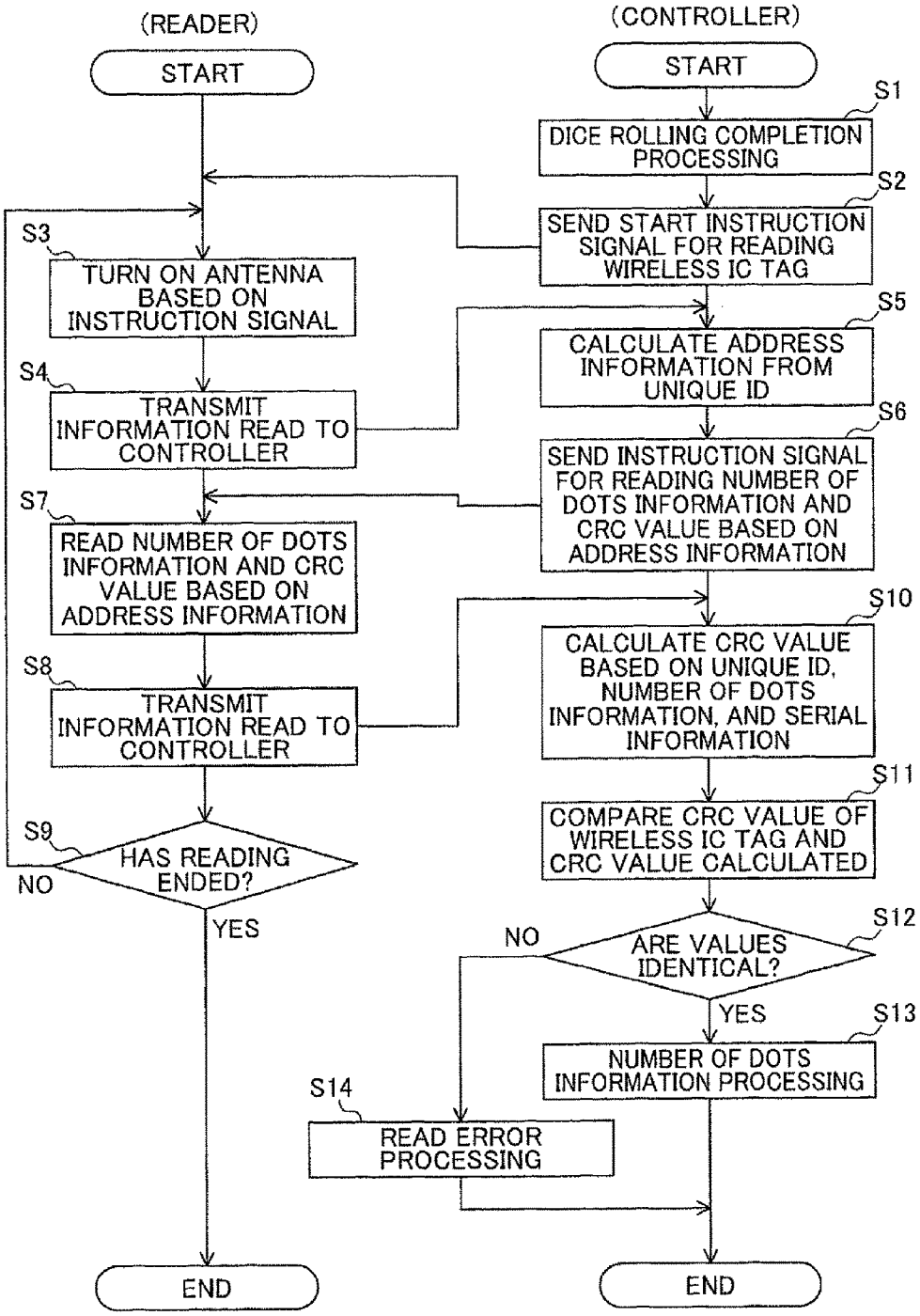

(READER)
START
S3
TURN ON ANTENNA BASED ON INSTRUCTION SIGNAL
S4
TRANSMIT INFORMATION READ TO CONTROLLER
S7
READ NUMBER OF DOTS INFORMATION AND CRC VALUE BASED ON ADDRESS INFORMATION
S8
TRANSMIT INFORMATION READ TO CONTROLLER
S9
HAS READING ENDED?
NO
YES
END
(CONTROLLER)
START
S1
DICE ROLLING COMPLETION PROCESSING
S2
SEND START INSTRUCTION SIGNAL FOR READING WIRELESS IC TAG
S5
CALCULATE ADDRESS INFORMATION FROM UNIQUE ID
S6
SEND INSTRUCTION SIGNAL FOR READING NUMBER OF DOTS INFORMATION AND CRC VALUE BASED ON ADDRESS INFORMATION
S10
CALCULATE CRC VALUE BASED ON UNIQUE ID, NUMBER OF DOTS INFORMATION, AND SERIAL INFORMATION
S11
COMPARE CRC VALUE OF WIRELESS IC TAG AND CRC VALUE CALCULATED
S12
ARE VALUES IDENTICAL?
NO
YES
S13
NUMBER OF DOTS INFORMATION PROCESSING
S14
READ ERROR PROCESSING
END

FIG. 13

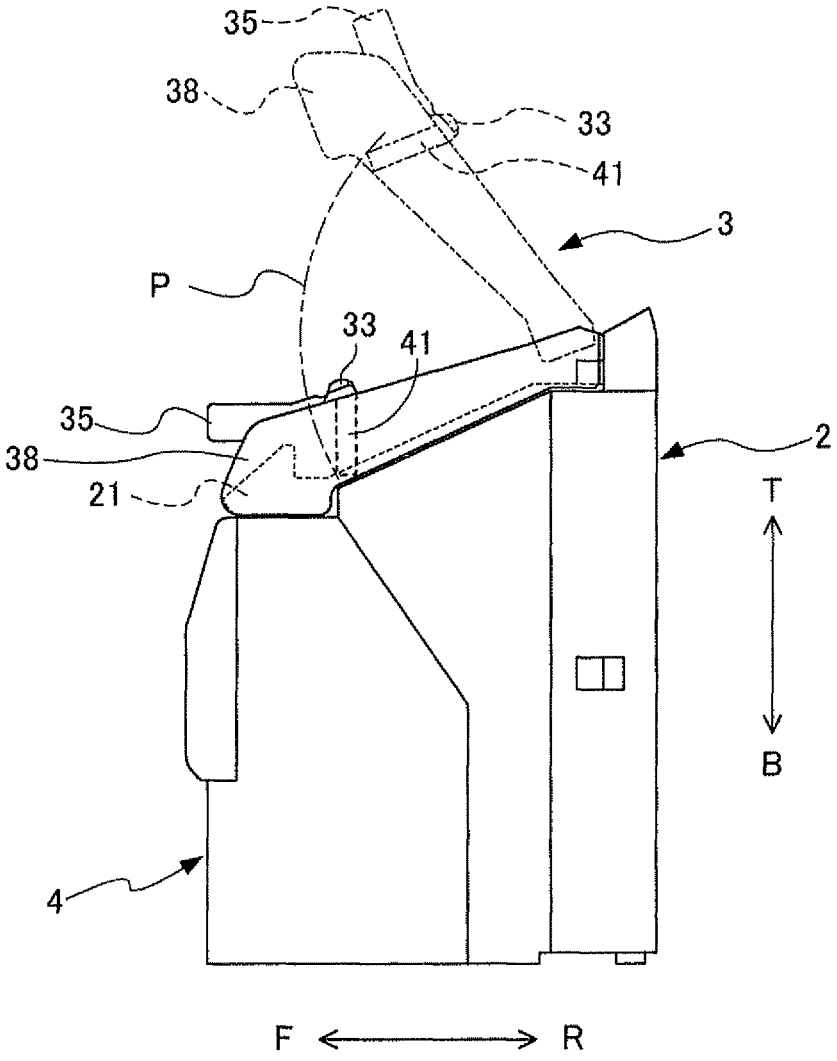


FIG. 14

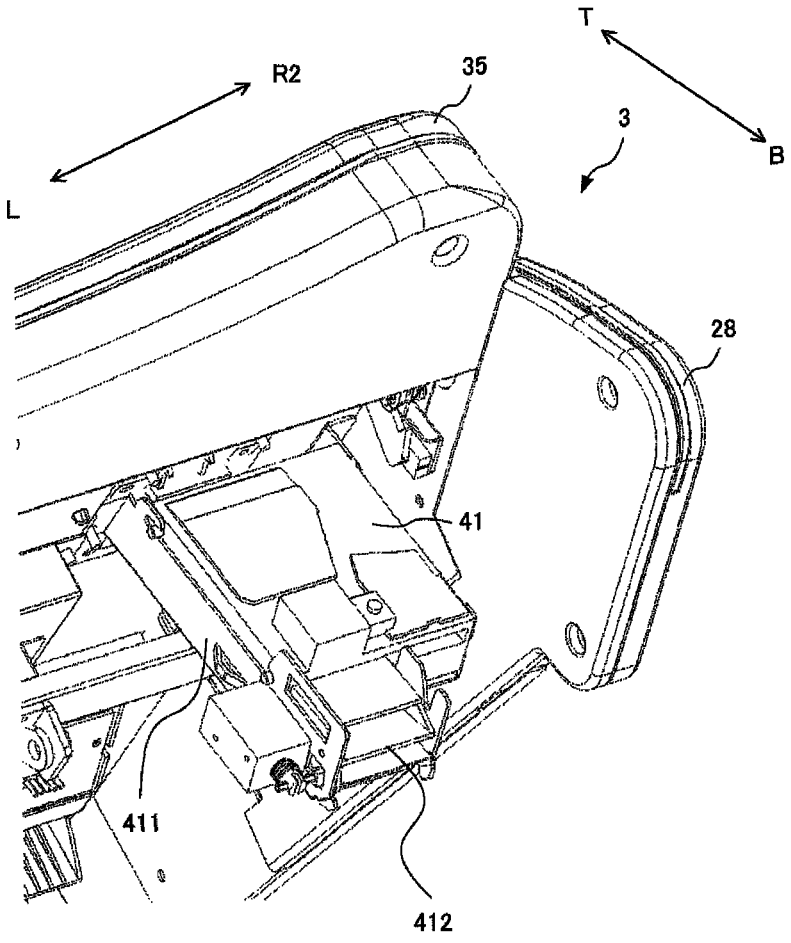
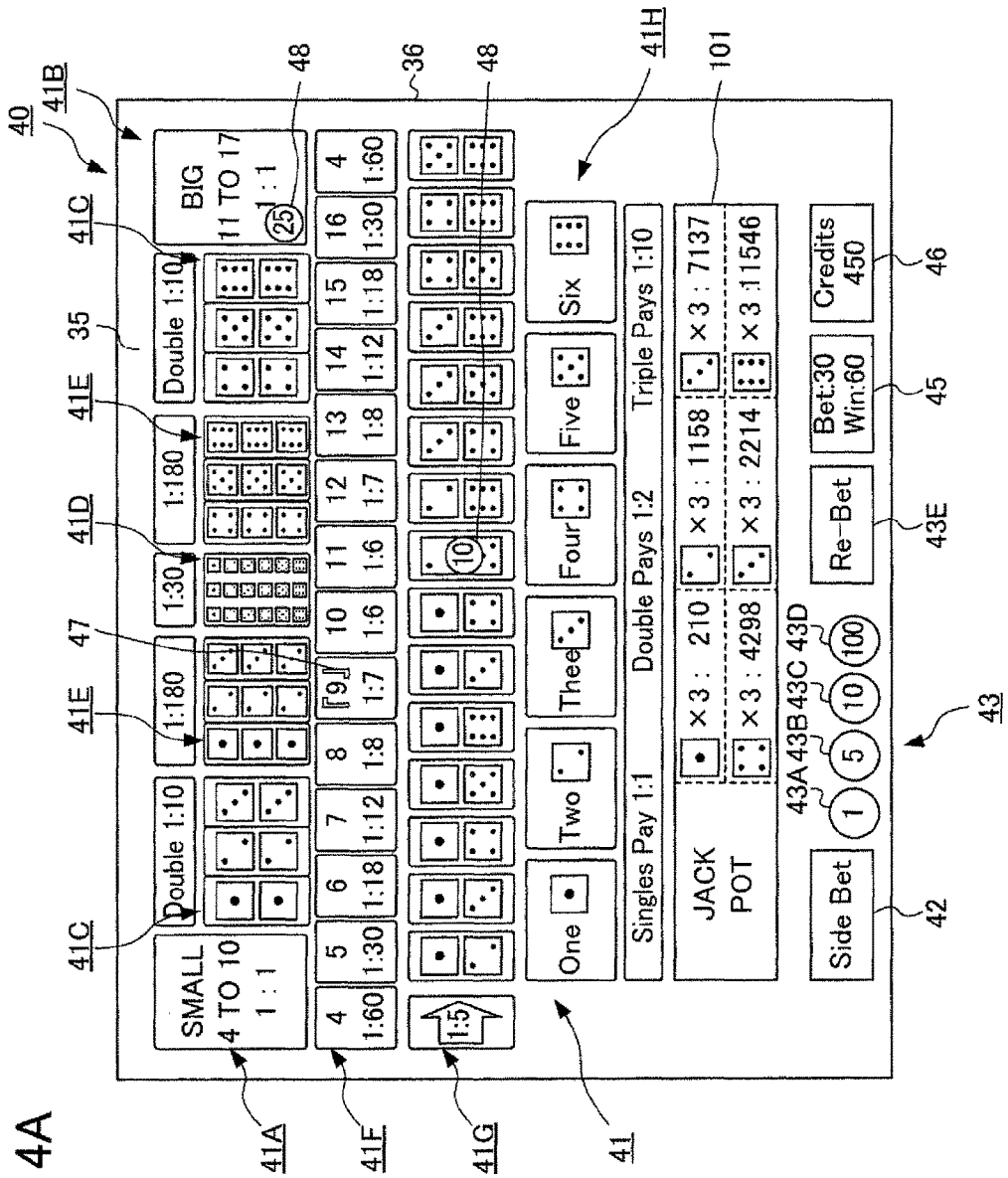


FIG.14A


40
41B
41C
41E
41D
41E
47
41C
41A
41F
41G
41
48
36
48
41H
101
35
SMALL
4 TO 10
1 : 1
Double 1:10
1:180
1:30
1:180
Double 1:10
BIG
11 TO 17
1 : 1
25
10
One
Two
Three
Four
Five
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK POT
× 3 : 210
× 3 : 1158
× 3 : 7137
× 3 : 4298
× 3 : 2214
× 3 : 11546
43A 43B 43C 43D
Side Bet
1
5
10
100
42
43
Re-Bet
43E
Bet:30
Win:60
45
Credits
450
46

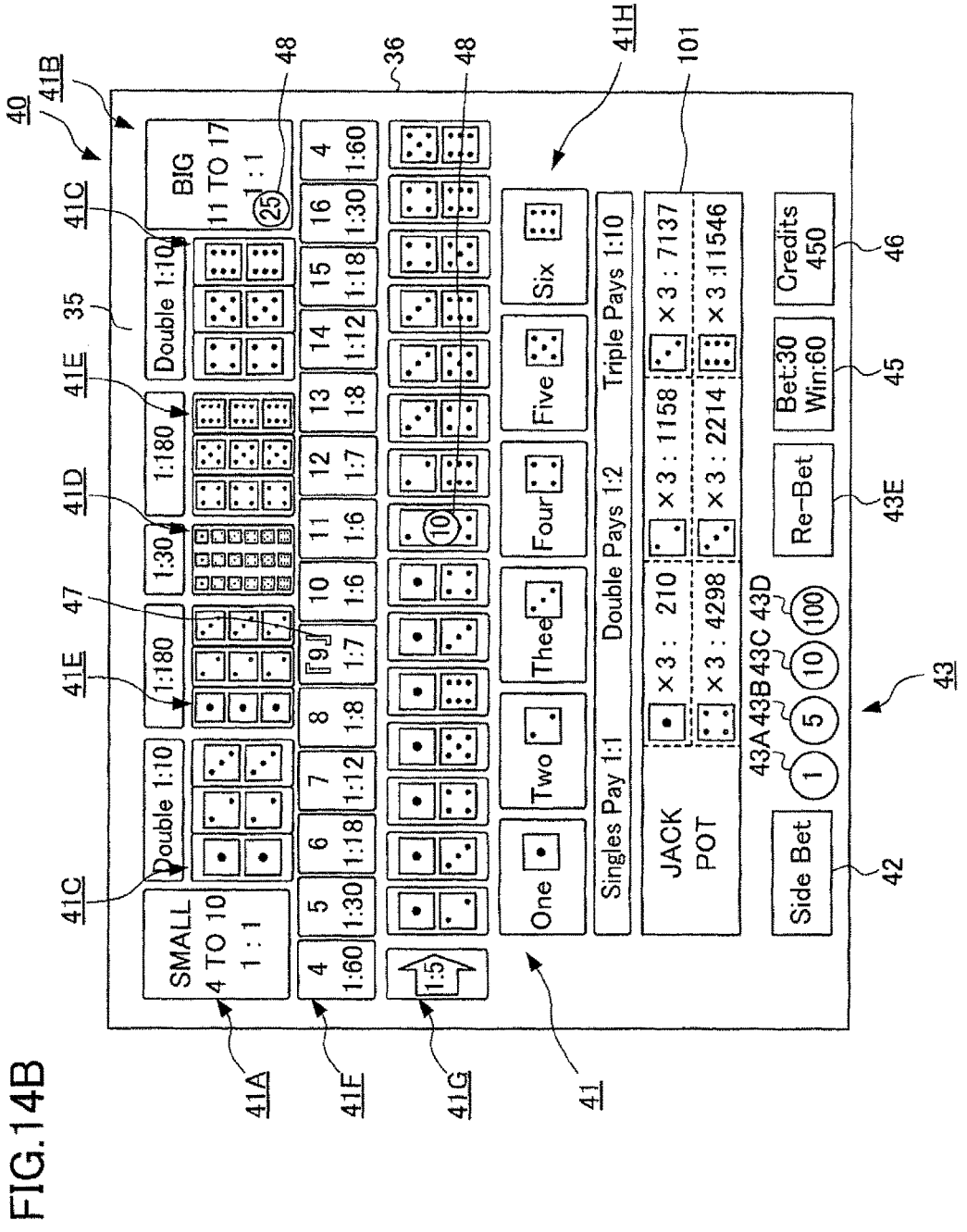

40
41B
41C
41E
41D
41E
41C
41A
41F
41G
41
41H
101
48
36
48
35
47
43
SMALL
4 TO 10
1 : 1
Double 1:10
1:180
1:30
1:180
Double 1:10
BIG
11 TO 17
1 : 1
25
One
Two
Thee
Four
Five
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK POT
× 3 : 210
× 3 : 4298
× 3 : 1158
× 3 : 2214
× 3 : 7137
× 3 :11546
43A 43B 43C 43D
1 5 10 100
Side Bet
42
Re-Bet
43E
Bet:30
Win:60
45
Credits
450
46

FIG.14B

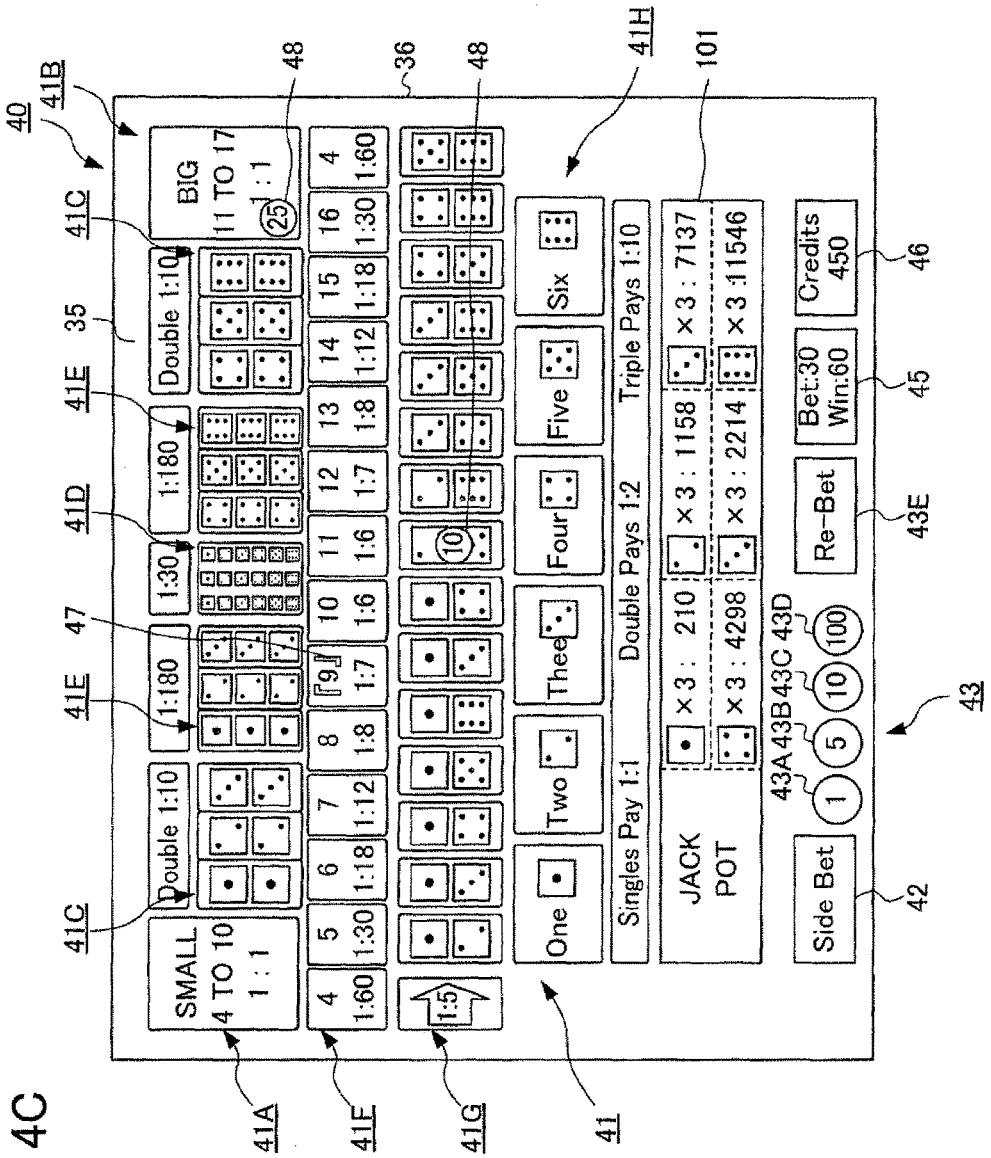

40
41B
41C
41E
41D
41E
41E
41C
41H
101
48
36
48
35
47
SMALL
4 TO 10
1 : 1
Double 1:10
1:180
1:30
1:180
Double 1:10
BIG
11 TO 17
1 : 1
4 1:60
5 1:30
6 1:18
7 1:12
8 1:8
9
10 1:7
11 1:6
12 1:7
13 1:8
14 1:12
15 1:18
16 1:30
4 1:60
1:5
One
Two
Thee
Four
Five
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK POT
× 3 : 210
× 3 : 1158
× 3 : 7137
× 3 : 4298
× 3 : 2214
× 3 : 11546
43A 43B 43C 43D
1
5
10
100
Side Bet
Re-Bet
Bet:30
Win:60
Credits
450
42
43E
45
46
43
41A
41F
41G
41

FIG.14C

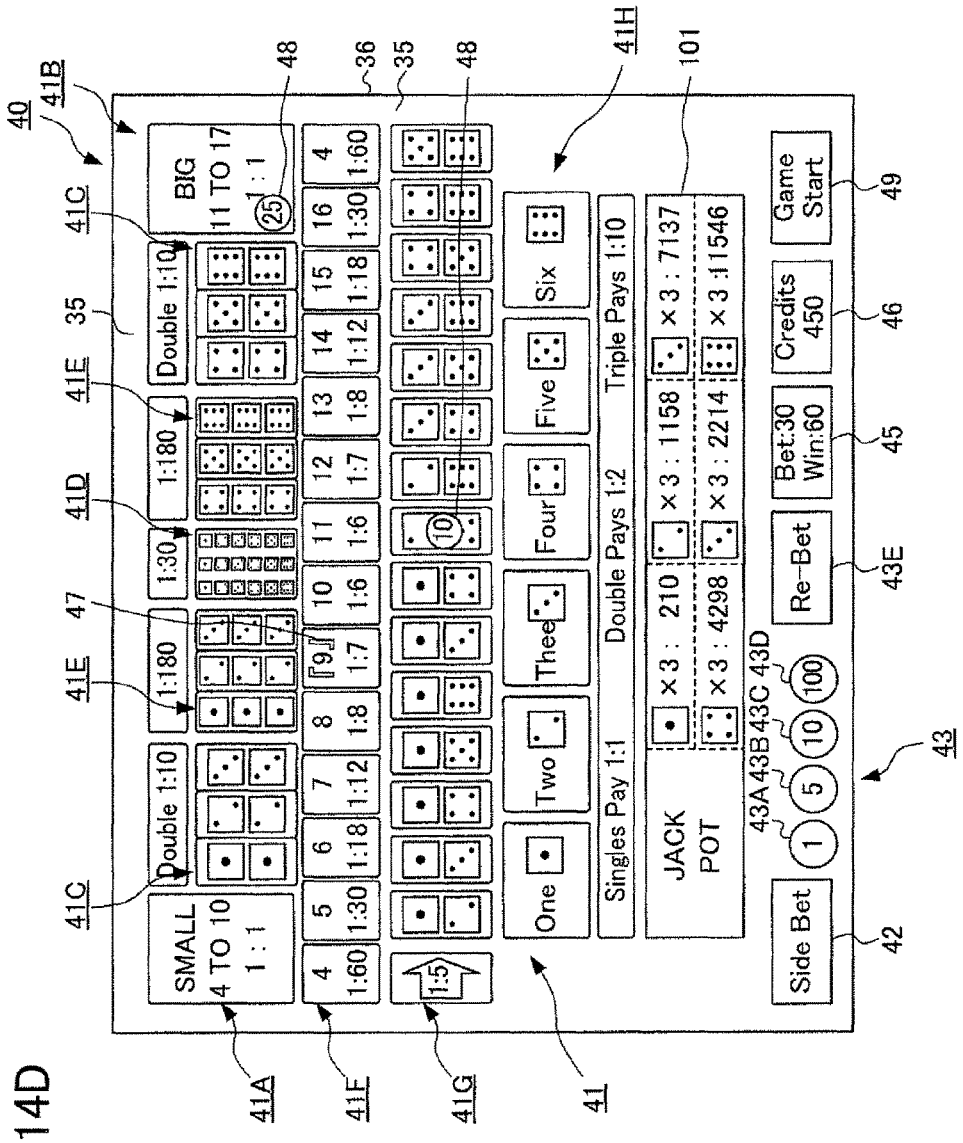

40
41B
41C
41E
41D
41E
47
41C
41A
41F
41G
41
41H
101
48
36
35
48
35
SMALL
4 TO 10
1 : 1
Double 1:10
1:180
1:30
1:180
Double 1:10
BIG
11 TO 17
1 : 1
25
4 1:60
5 1:30
6 1:18
7 1:12
8 1:8
9
10 1:6
11 1:6
12 1:7
13 1:8
14 1:12
15 1:18
16 1:30
4 1:60
1:5
10
One
Two
Thee
Four
Five
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK POT
× 3 : 210
× 3 : 4298
× 3 : 1158
× 3 : 2214
× 3 : 7137
× 3 :11546
43A 43B 43C 43D
1 5 10 100
Side Bet
Re-Bet
Bet:30
Win:60
Credits
450
Game
Start
42
43E
45
46
49
43

FIG.14D

FIG. 14E

INFRARED CAMERA CAPTURING DATA TABLE

X	Y	181	182	183	184	185	186	187
-50	55	○	○	×	○	×	○	○

FIG. 15E

DOT PATTERN DATA CLASSIFICATION TABLE

DOT	EXISTENCE OF INFRARED ABSORPTION INK							
181	×	○	×	×	○	○	×	○
182	×	×	○	×	○	×	○	○
183	×	×	×	○	×	○	○	○
COLOR	-	-	-	-	RED	WHITE	BLACK	-

FIG. 16E

NUMBER OF DOTS-DOT PATTERN DATA TABLE

DOT	EXISTENCE OF INFRARED ABSORPTION INK															
184	×	○	×	×	×	○	○	○	×	×	×	○	○	○	×	○
185	×	×	○	×	×	○	×	×	○	○	×	○	○	×	○	○
186	×	×	×	○	×	×	○	×	○	×	○	○	×	○	○	○
187	×	×	×	×	○	×	×	○	×	○	○	×	○	○	○	○
NUMBER OF DOTS	-	-	-	-	-	-	-	1	2	-	-	3	4	5	6	-

FIG. 15

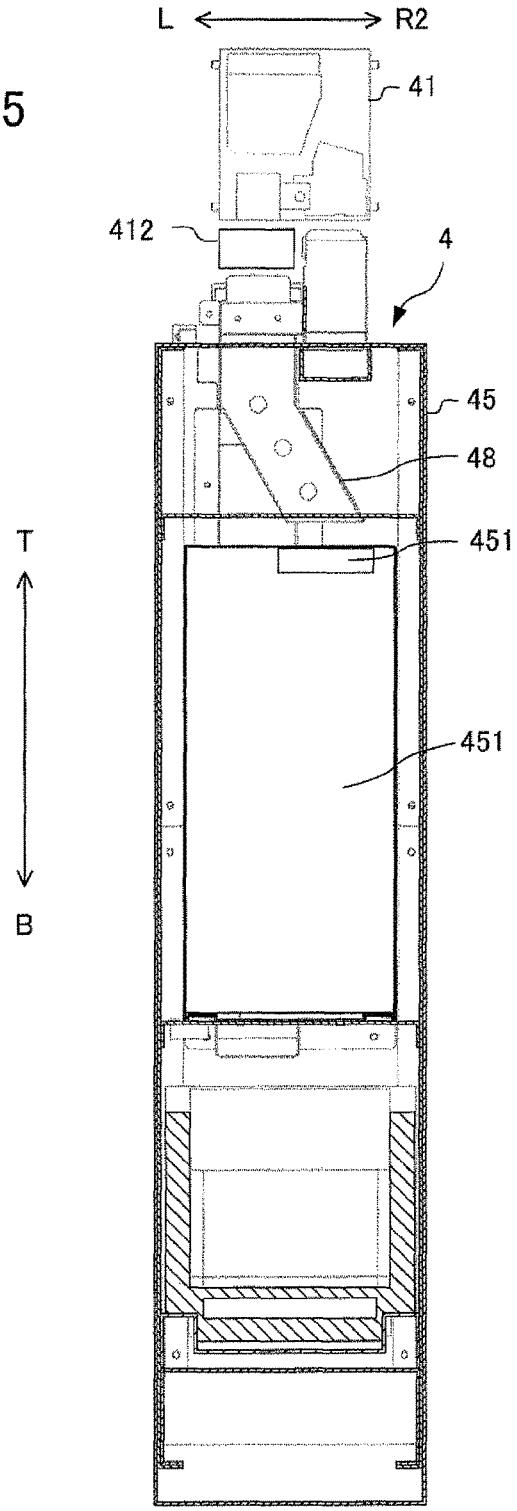


FIG.15A

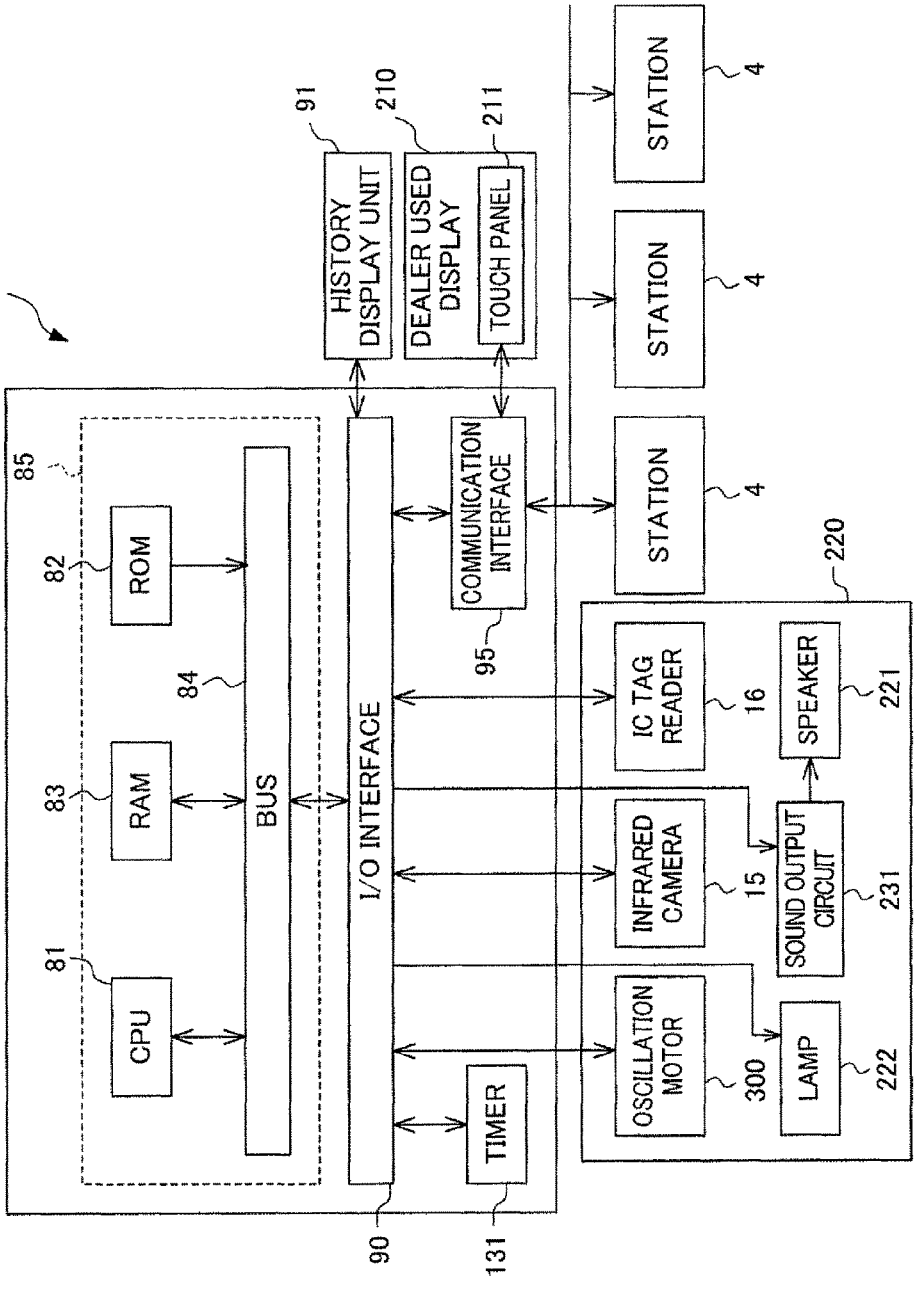
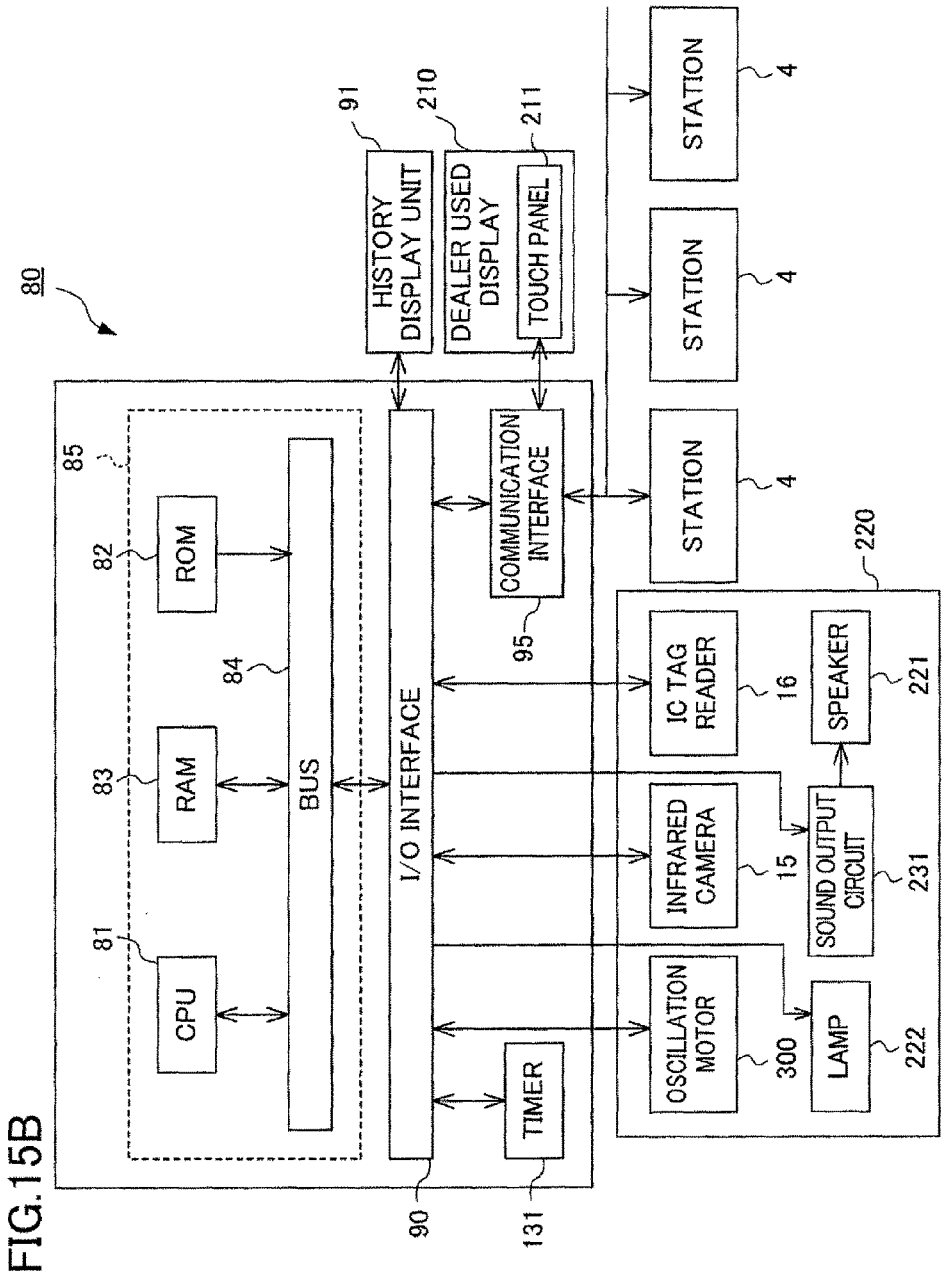

80
85
81
CPU
82
ROM
83
RAM
84
BUS
90
I/O INTERFACE
131
TIMER
91
HISTORY DISPLAY UNIT
210
DEALER USED DISPLAY
211
TOUCH PANEL
95
COMMUNICATION INTERFACE
4
STATION
4
STATION
4
STATION
220
16
IC TAG READER
15
INFRARED CAMERA
300
OSCILLATION MOTOR
231
SOUND OUTPUT CIRCUIT
221
SPEAKER
222
LAMP

FIG.15B


80
85
CPU
81
ROM
82
RAM
83
BUS
84
I/O INTERFACE
90
TIMER
131
COMMUNICATION INTERFACE
95
HISTORY DISPLAY UNIT
91
DEALER USED DISPLAY
210
TOUCH PANEL
211
STATION
4
STATION
4
STATION
4
STATION
4
220
IC TAG READER
16
SPEAKER
221
INFRARED CAMERA
15
SOUND OUTPUT CIRCUIT
231
OSCILLATION MOTOR
300
LAMP
222

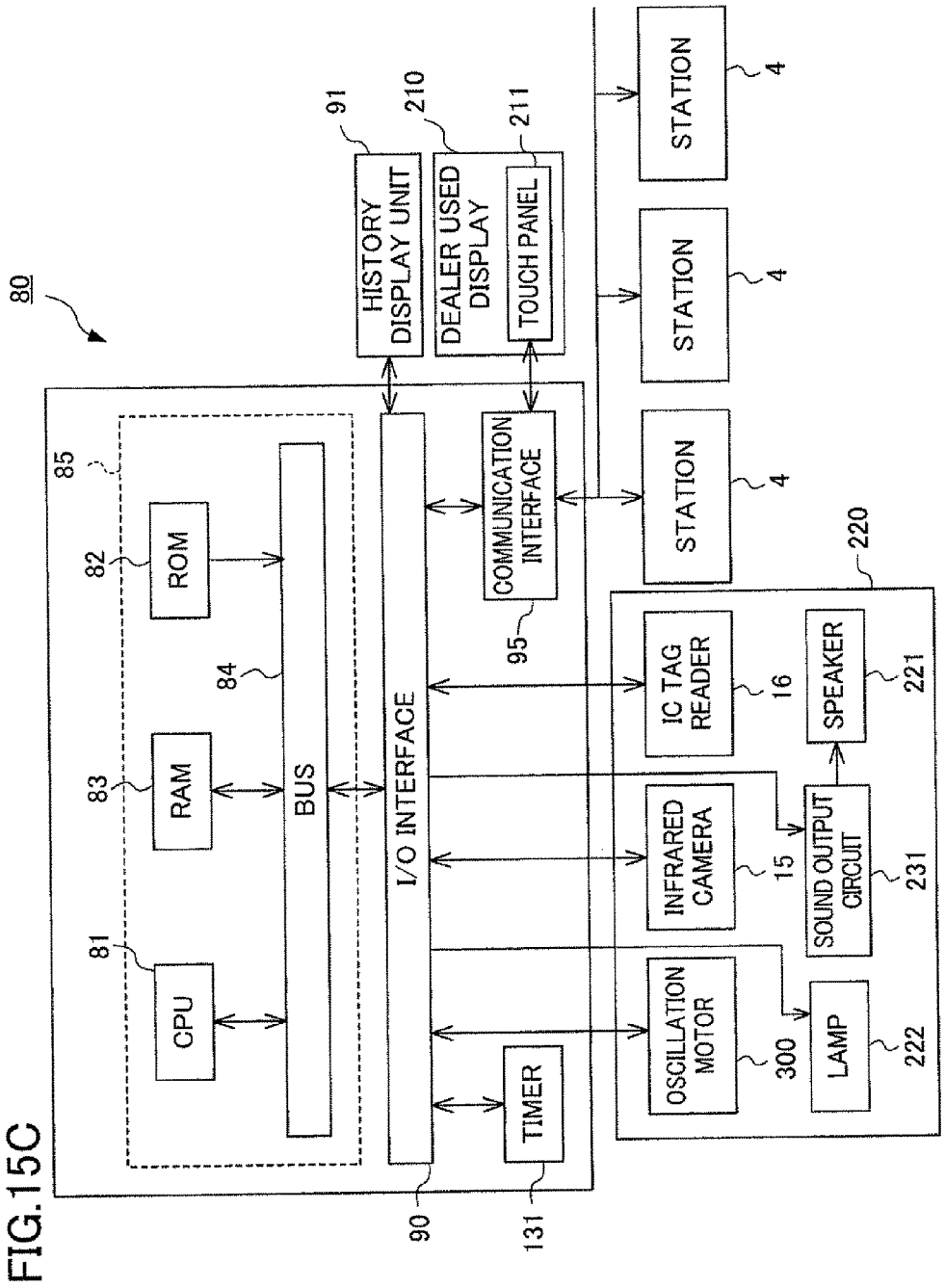

80
85
81
CPU
82
ROM
83
RAM
84
BUS
I/O INTERFACE
90
TIMER
131
91
HISTORY DISPLAY UNIT
210
DEALER USED DISPLAY
211
TOUCH PANEL
COMMUNICATION INTERFACE
95
STATION
4
STATION
4
STATION
4
220
IC TAG READER
16
SPEAKER
221
INFRARED CAMERA
15
SOUND OUTPUT CIRCUIT
231
OSCILLATION MOTOR
300
LAMP
222

FIG.15C

FIG.15D

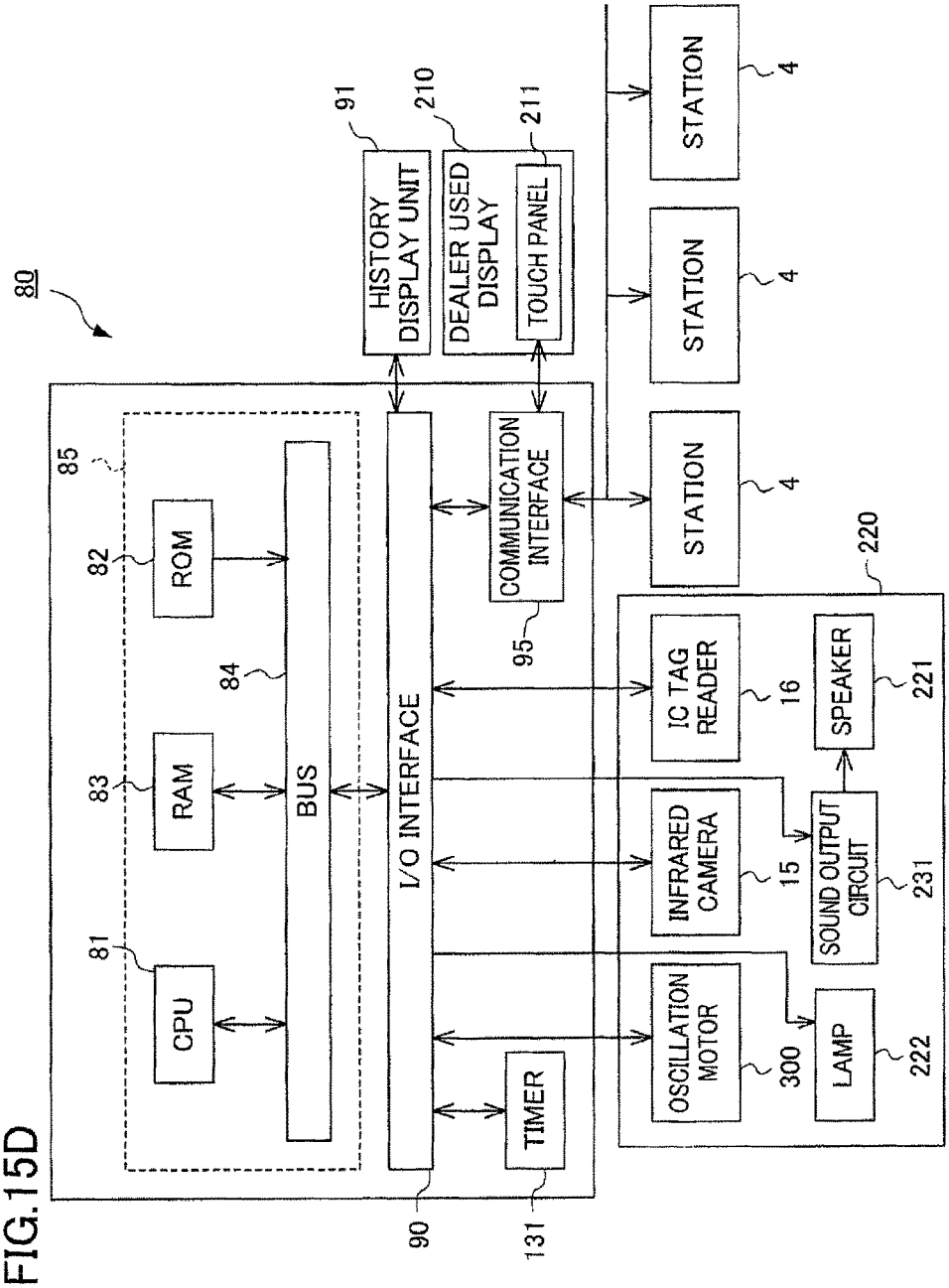
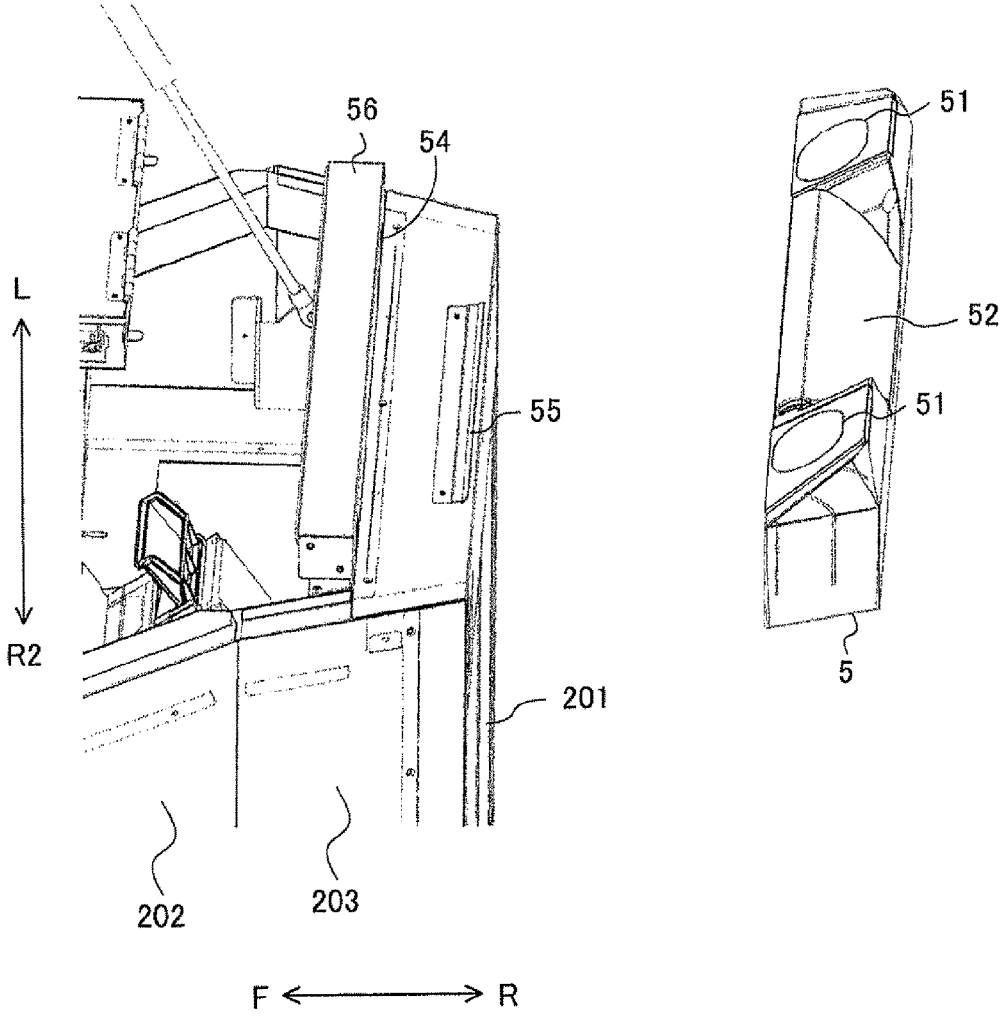

80
85
CPU
81
ROM
82
RAM
83
BUS
84
I/O INTERFACE
90
TIMER
131
COMMUNICATION INTERFACE
95
HISTORY DISPLAY UNIT
91
DEALER USED DISPLAY
210
TOUCH PANEL
211
STATION
4
STATION
4
STATION
4
220
IC TAG READER
16
SPEAKER
221
INFRARED CAMERA
15
SOUND OUTPUT CIRCUIT
231
OSCILLATION MOTOR
300
LAMP
222

FIG. 16



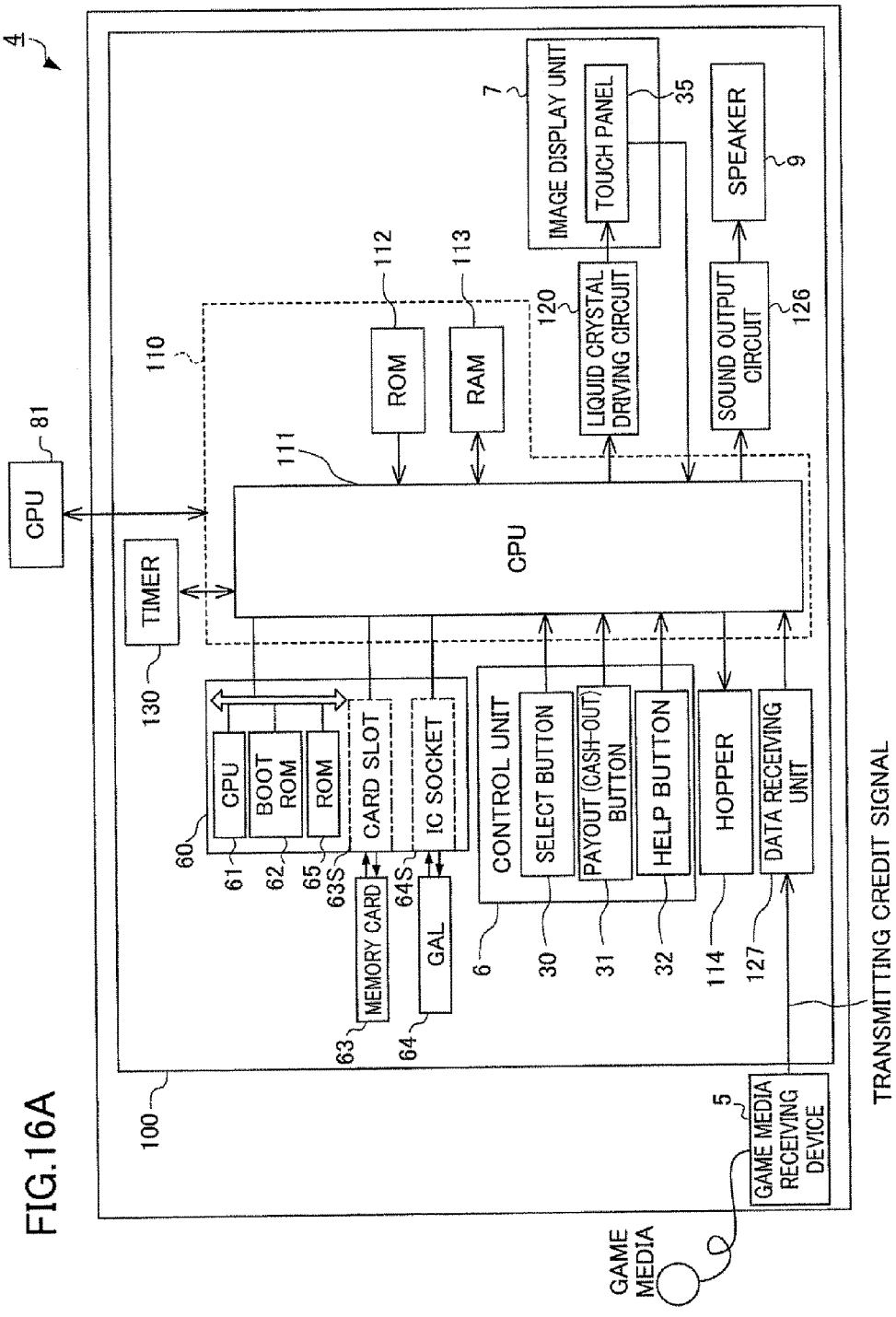

4
CPU
81
TIMER
130
110
111
CPU
ROM
112
RAM
113
LIQUID CRYSTAL DRIVING CIRCUIT
120
IMAGE DISPLAY UNIT
7
TOUCH PANEL
35
SOUND OUTPUT CIRCUIT
126
SPEAKER
9
CPU
BOOT ROM
ROM
60
61
62
65
CARD SLOT
63S
IC SOCKET
64S
MEMORY CARD
63
GAL
64
CONTROL UNIT
6
SELECT BUTTON
30
PAYOUT (CASH-OUT) BUTTON
31
HELP BUTTON
32
HOPPER
114
DATA RECEIVING UNIT
127
100
5
GAME MEDIA RECEIVING DEVICE
GAME MEDIA
TRANSMITTING CREDIT SIGNAL

FIG.16A

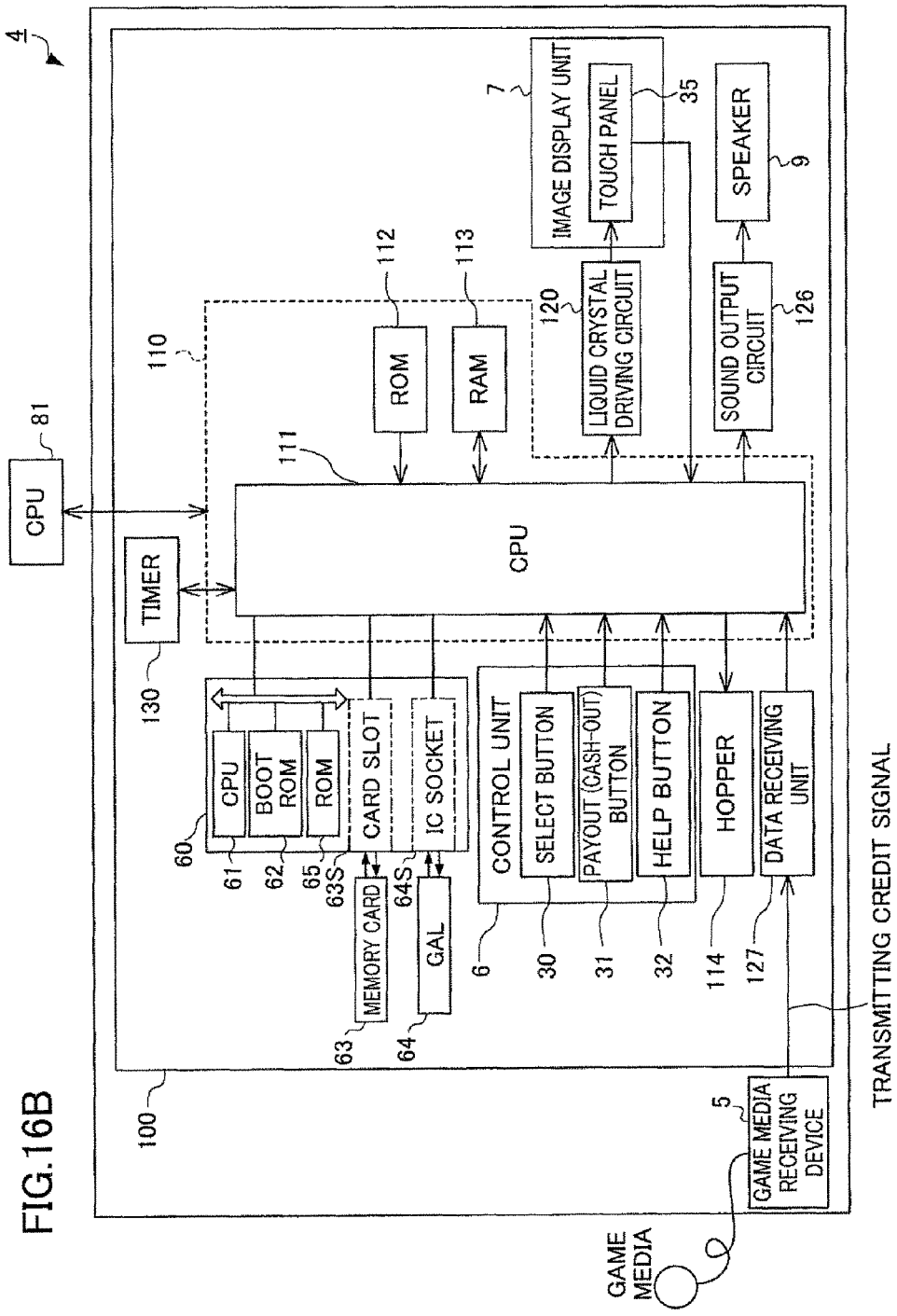
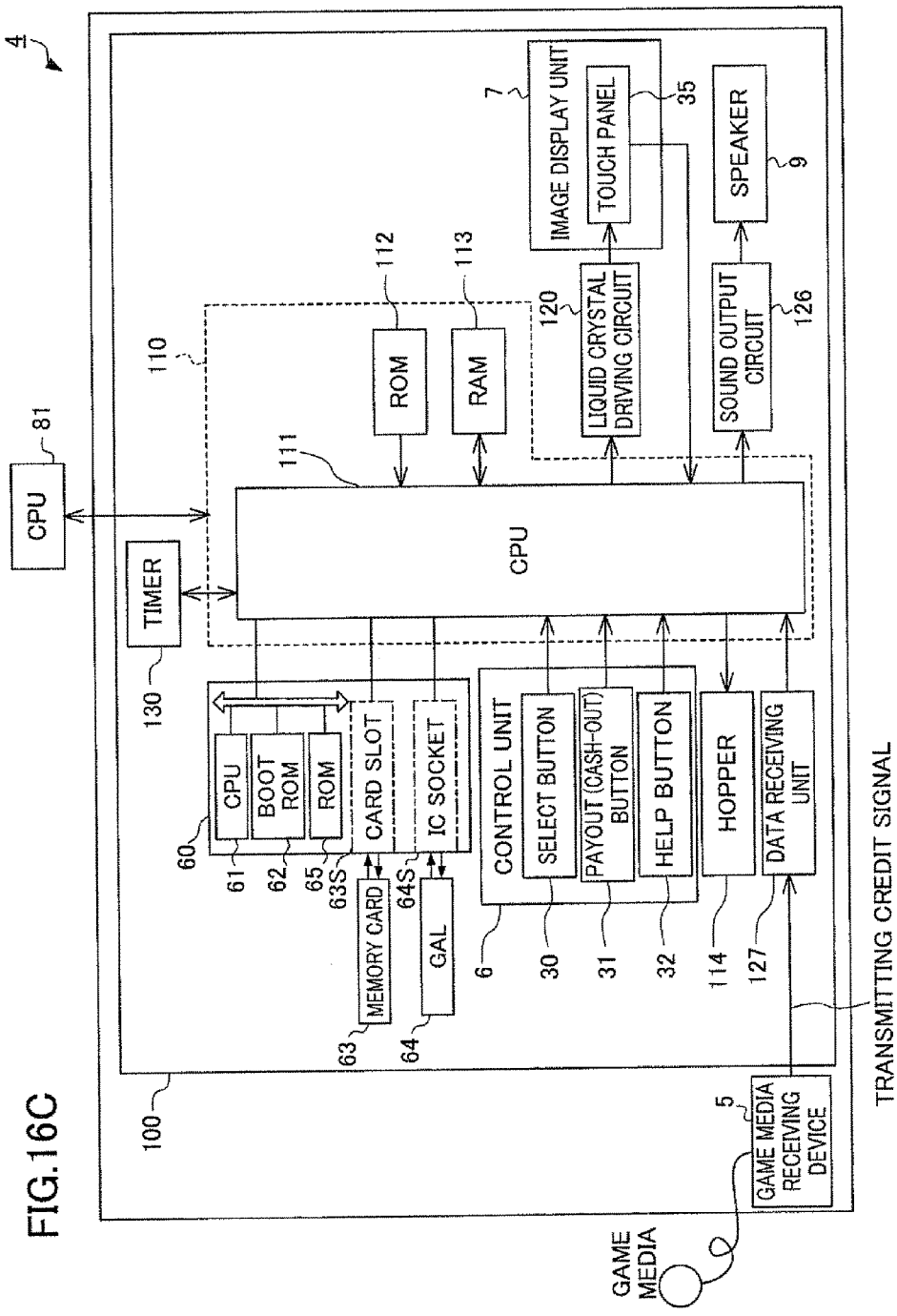

4
CPU
81
TIMER
130
110
111
CPU
ROM
112
RAM
113
120
LIQUID CRYSTAL DRIVING CIRCUIT
7
IMAGE DISPLAY UNIT
TOUCH PANEL
35
SOUND OUTPUT CIRCUIT
126
SPEAKER
9
CPU
BOOT ROM
ROM
60
61
62
65
CARD SLOT
63S
IC SOCKET
64S
MEMORY CARD
63
GAL
64
CONTROL UNIT
6
SELECT BUTTON
30
PAYOUT (CASH-OUT) BUTTON
31
HELP BUTTON
32
HOPPER
114
DATA RECEIVING UNIT
127
100
5
GAME MEDIA RECEIVING DEVICE
GAME MEDIA
TRANSMITTING CREDIT SIGNAL

FIG.16B

FIG.16C


4
CPU
81
TIMER
130
110
111
CPU
ROM
112
RAM
113
120
LIQUID CRYSTAL DRIVING CIRCUIT
7
IMAGE DISPLAY UNIT
TOUCH PANEL
35
SOUND OUTPUT CIRCUIT
126
SPEAKER
9
CPU
BOOT ROM
ROM
60
61
62
65
CARD SLOT
63S
IC SOCKET
64S
MEMORY CARD
63
GAL
64
CONTROL UNIT
6
SELECT BUTTON
30
PAYOUT (CASH-OUT) BUTTON
31
HELP BUTTON
32
HOPPER
114
DATA RECEIVING UNIT
127
100
5
GAME MEDIA RECEIVING DEVICE
GAME MEDIA
TRANSMITTING CREDIT SIGNAL

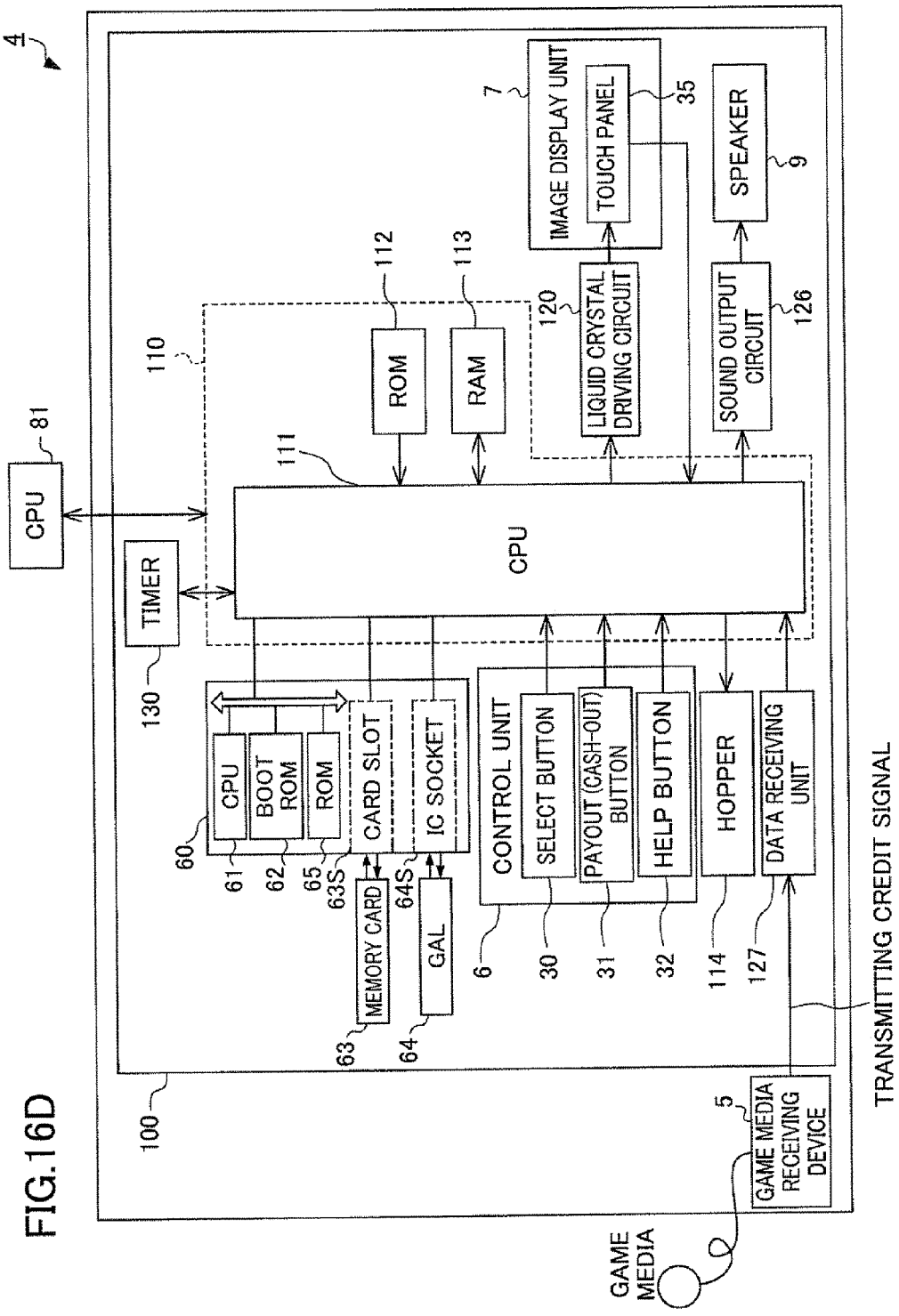

4
CPU
81
TIMER
130
110
111
CPU
ROM
112
RAM
113
LIQUID CRYSTAL DRIVING CIRCUIT
120
IMAGE DISPLAY UNIT
7
TOUCH PANEL
35
SOUND OUTPUT CIRCUIT
126
SPEAKER
9
CPU
BOOT ROM
ROM
CARD SLOT
IC SOCKET
60
61
62
65
63S
64S
MEMORY CARD
GAL
63
64
CONTROL UNIT
SELECT BUTTON
PAYOUT (CASH-OUT) BUTTON
HELP BUTTON
HOPPER
DATA RECEIVING UNIT
6
30
31
32
114
127
100
5
GAME MEDIA RECEIVING DEVICE
GAME MEDIA
TRANSMITTING CREDIT SIGNAL

FIG.16D

FIG. 17

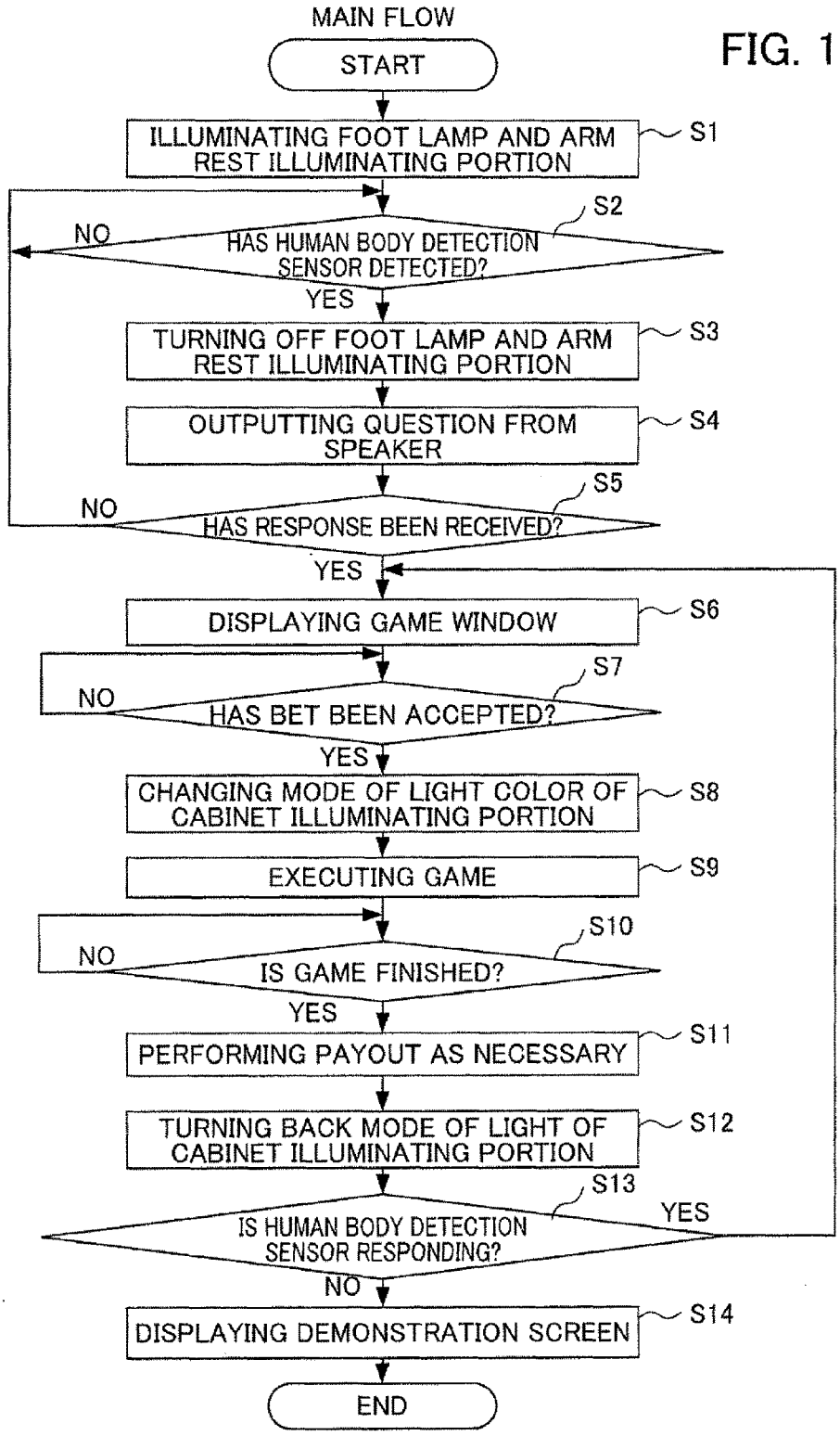

MAIN FLOW
START
ILLUMINATING FOOT LAMP AND ARM REST ILLUMINATING PORTION
S1
HAS HUMAN BODY DETECTION SENSOR DETECTED?
S2
NO
YES
TURNING OFF FOOT LAMP AND ARM REST ILLUMINATING PORTION
S3
OUTPUTTING QUESTION FROM SPEAKER
S4
HAS RESPONSE BEEN RECEIVED?
S5
NO
YES
DISPLAYING GAME WINDOW
S6
HAS BET BEEN ACCEPTED?
S7
NO
YES
CHANGING MODE OF LIGHT COLOR OF CABINET ILLUMINATING PORTION
S8
EXECUTING GAME
S9
IS GAME FINISHED?
S10
NO
YES
PERFORMING PAYOUT AS NECESSARY
S11
TURNING BACK MODE OF LIGHT OF CABINET ILLUMINATING PORTION
S12
IS HUMAN BODY DETECTION SENSOR RESPONDING?
S13
YES
NO
DISPLAYING DEMONSTRATION SCREEN
S14
END

FIG. 17A

INSTRUCTION IMAGE DISPLAY DETERMINATION TABLE

DEALER' S LEVEL	BET START INSTRUCTION IMAGE	BET END INSTRUCTION IMAGE
HIGH LEVEL	×	×
INTERMEDIATE LEVEL	×	○
LOW LEVEL	○	○

FIG. 18A

BET EXISTENCE DETERMINATION TABLE

	STATION NUMBER									
	1	2	3	4	5	6	7	8	9	10
BET	A	P	P	A	A	P	P	P	P	A

FIG. 19A

OSCILLATION MODE DATA TABLE

OSCILLATION PATTERN	OSCILLATION MODE		
PATTERN 1	SMALL OSCILLATION 5 SEC.	LARGE OSCILLATION 5 SEC.	SUBTLE OSCILLATION 5 SEC.
PATTERN 2	SMALL OSCILLATION 4 SEC.	LARGE OSCILLATION 5 SEC.	SUBTLE OSCILLATION 6 SEC.
PATTERN 3	SMALL OSCILLATION 6 SEC.	LARGE OSCILLATION 4 SEC.	SUBTLE OSCILLATION 5 SEC.
PATTERN 4	SMALL OSCILLATION 3 SEC.	LARGE OSCILLATION 8 SEC.	SUBTLE OSCILLATION 4 SEC.
⋮	⋮	⋮	⋮

FIG. 17B

INSTRUCTION IMAGE DISPLAY DETERMINATION TABLE

DEALER'S LEVEL	BET START INSTRUCTION IMAGE	BET END INSTRUCTION IMAGE
HIGH LEVEL	×	×
INTERMEDIATE LEVEL	×	○
LOW LEVEL	○	○

FIG. 18B

BET EXISTENCE DETERMINATION TABLE

	STATION NUMBER									
	1	2	3	4	5	6	7	8	9	10
BET	A	P	P	A	A	P	P	P	P	A

FIG. 19B

OSCILLATION MODE DATA TABLE

OSCILLATION PATTERN	OSCILLATION MODE		
PATTERN 1	SMALL OSCILLATION 5 SEC.	LARGE OSCILLATION 5 SEC.	SUBTLE OSCILLATION 5 SEC.
PATTERN 2	SMALL OSCILLATION 4 SEC.	LARGE OSCILLATION 5 SEC.	SUBTLE OSCILLATION 6 SEC.
PATTERN 3	SMALL OSCILLATION 6 SEC.	LARGE OSCILLATION 4 SEC.	SUBTLE OSCILLATION 5 SEC.
PATTERN 4	SMALL OSCILLATION 3 SEC.	LARGE OSCILLATION 8 SEC.	SUBTLE OSCILLATION 4 SEC.
⋮	⋮	⋮	⋮

FIG. 17C

INSTRUCTION IMAGE DISPLAY DETERMINATION TABLE

DEALER'S LEVEL	BET START INSTRUCTION IMAGE	BET END INSTRUCTION IMAGE
HIGH LEVEL	×	×
INTERMEDIATE LEVEL	×	○
LOW LEVEL	○	○

FIG. 18C

BET EXISTENCE DETERMINATION TABLE

	STATION NUMBER									
	1	2	3	4	5	6	7	8	9	10
BET	A	P	P	A	A	P	P	P	P	A

FIG. 19C

OSCILLATION MODE DATA TABLE

OSCILLATION PATTERN	OSCILLATION MODE		
PATTERN 1	SMALL OSCILLATION 5 SEC.	LARGE OSCILLATION 5 SEC.	SUBTLE OSCILLATION 5 SEC.
PATTERN 2	SMALL OSCILLATION 4 SEC.	LARGE OSCILLATION 5 SEC.	SUBTLE OSCILLATION 6 SEC.
PATTERN 3	SMALL OSCILLATION 6 SEC.	LARGE OSCILLATION 4 SEC.	SUBTLE OSCILLATION 5 SEC.
PATTERN 4	SMALL OSCILLATION 3 SEC.	LARGE OSCILLATION 8 SEC.	SUBTLE OSCILLATION 4 SEC.
⋮	⋮	⋮	⋮

FIG. 17D

INSTRUCTION IMAGE DISPLAY DETERMINATION TABLE

DEALER'S LEVEL	BET START INSTRUCTION IMAGE	BET END INSTRUCTION IMAGE
HIGH LEVEL	×	×
INTERMEDIATE LEVEL	×	○
LOW LEVEL	○	○

FIG. 18D

BET EXISTENCE DETERMINATION TABLE

STATION NUMBER	1	2	3	4	5	6	7	8	9	10
BET INFORMATION	P	A	A	P	P	A	A	A	A	P
GAME START SIGNAL	P	A	A	P	P	A	A	A	A	P

FIG. 19D

OSCILLATION MODE DATA TABLE

OSCILLATION PATTERN	OSCILLATION MODE		
PATTERN 1	SMALL OSCILLATION 5 SEC.	LARGE OSCILLATION 5 SEC.	SUBTLE OSCILLATION 5 SEC.
PATTERN 2	SMALL OSCILLATION 4 SEC.	LARGE OSCILLATION 5 SEC.	SUBTLE OSCILLATION 6 SEC.
PATTERN 3	SMALL OSCILLATION 6 SEC.	LARGE OSCILLATION 4 SEC.	SUBTLE OSCILLATION 5 SEC.
PATTERN 4	SMALL OSCILLATION 3 SEC.	LARGE OSCILLATION 8 SEC.	SUBTLE OSCILLATION 4 SEC.
⋮	⋮	⋮	⋮

FIG. 17E

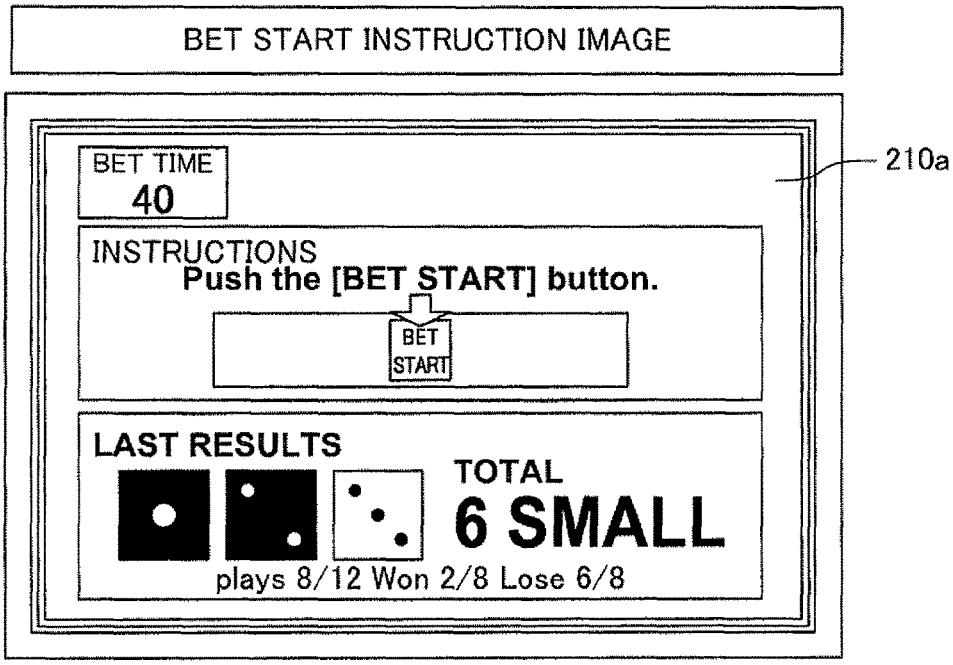


FIG. 18E

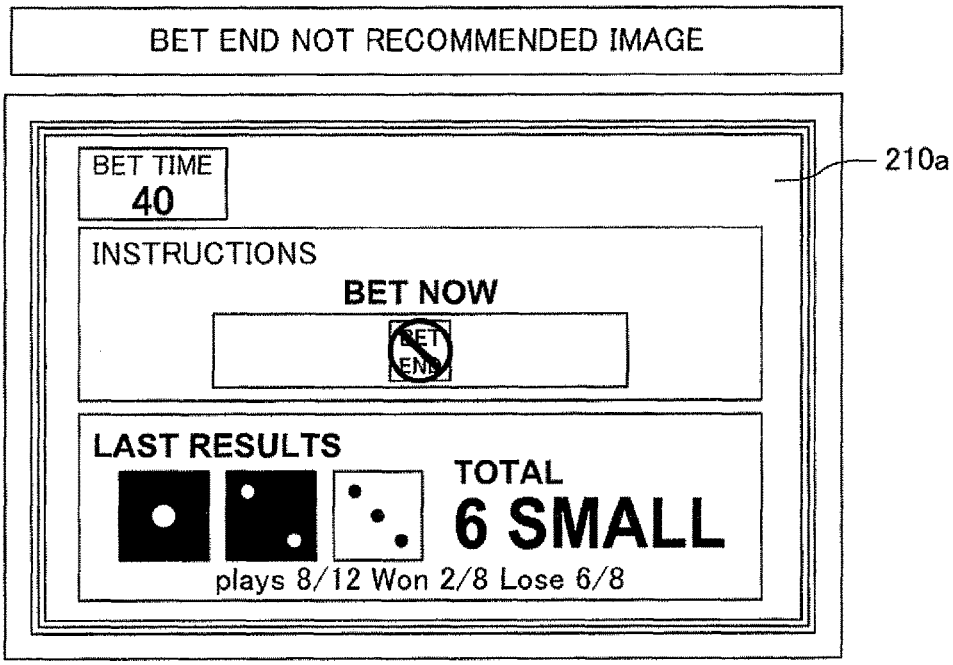


FIG. 18

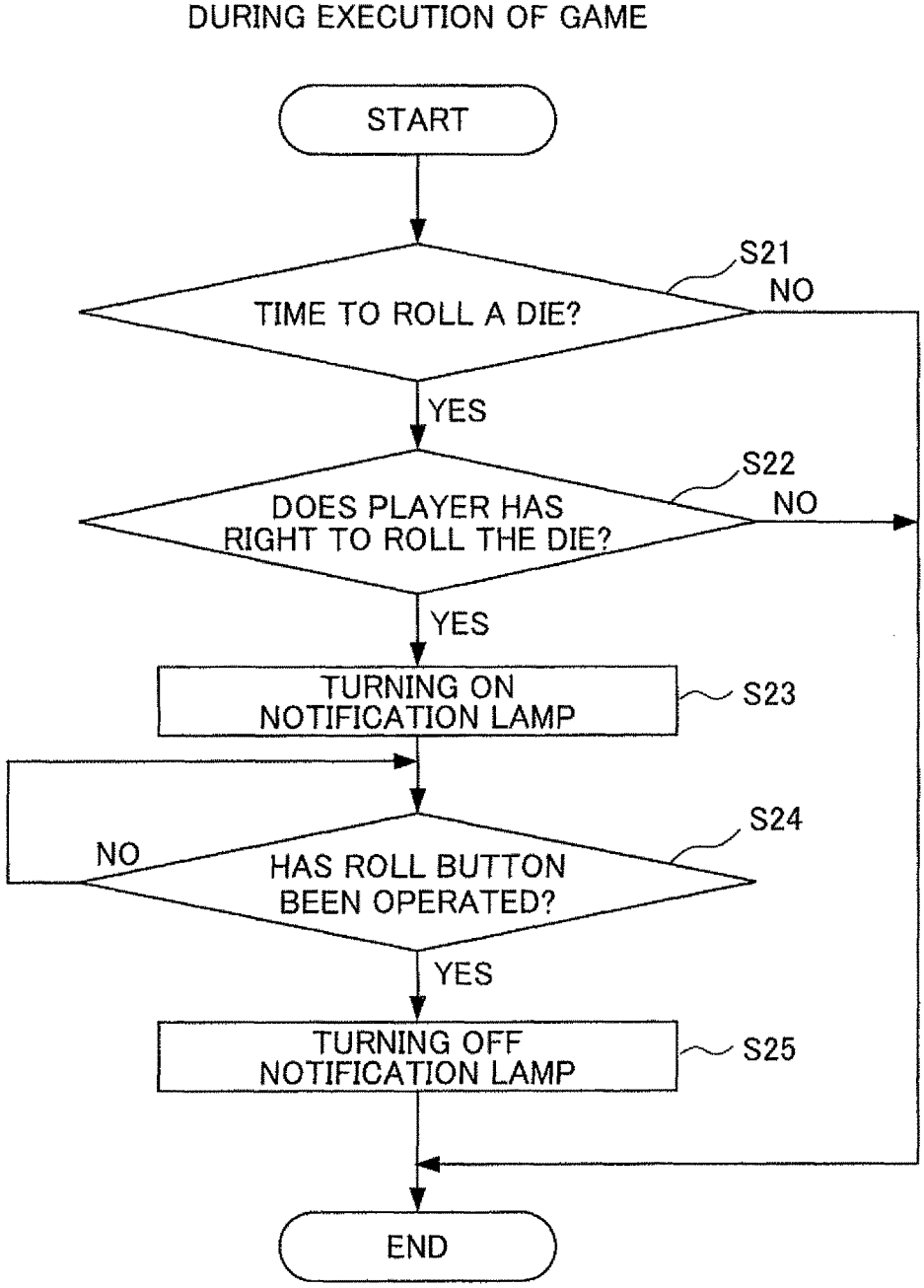

DURING EXECUTION OF GAME
START
TIME TO ROLL A DIE?
S21
NO
YES
DOES PLAYER HAS RIGHT TO ROLL THE DIE?
S22
NO
YES
TURNING ON NOTIFICATION LAMP
S23
HAS ROLL BUTTON BEEN OPERATED?
S24
NO
YES
TURNING OFF NOTIFICATION LAMP
S25
END

FIG. 19E

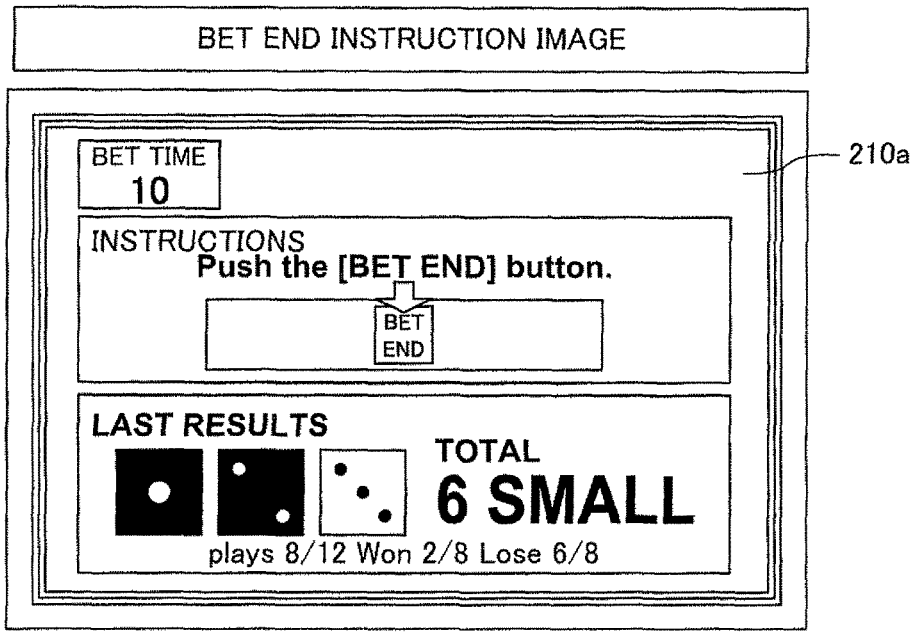

BET END INSTRUCTION IMAGE
BET TIME
10
INSTRUCTIONS
Push the [BET END] button.
BET
END
LAST RESULTS
TOTAL
6 SMALL
plays 8/12 Won 2/8 Lose 6/8
210a

FIG. 20A

RENDERED EFFECT TABLE

OSCILLATION MODE	TYPE OF SOUND
SMALL OSCILLATION	SOUND 1
LARGE OSCILLATION	SOUND 2
SUBTLE OSCILLATION	SOUND 3

FIG. 21A

IC TAG DATA TABLE

IDENTIFICATION DATA 1		IDENTIFICATION DATA 2		IDENTIFICATION DATA 3	
CLASSIFICATION	NUMBER OF DOTS	CLASSIFICATION	NUMBER OF DOTS	CLASSIFICATION	NUMBER OF DOTS
RED	6	WHITE	3	BLACK	5

FIG. 22A

INFRARED CAMERA CAPTURING DATA TABLE

X	Y	181	182	183	184	185	186	187
-50	55	○	○	×	○	×	○	○

FIG. 20B

RENDERED EFFECT TABLE

OSCILLATION MODE	TYPE OF SOUND
SMALL OSCILLATION	SOUND 1
LARGE OSCILLATION	SOUND 2
SUBTLE OSCILLATION	SOUND 3

FIG. 21B

IC TAG DATA TABLE

IDENTIFICATION DATA 1		IDENTIFICATION DATA 2		IDENTIFICATION DATA 3	
CLASSIFICATION	NUMBER OF DOTS	CLASSIFICATION	NUMBER OF DOTS	CLASSIFICATION	NUMBER OF DOTS
RED	6	WHITE	3	BLACK	5

FIG. 22B

INFRARED CAMERA CAPTURING DATA TABLE

X	Y	181	182	183	184	185	186	187
-50	55	○	○	×	○	×	○	○

FIG. 20C

RENDERED EFFECT TABLE

OSCILLATION MODE	TYPE OF SOUND
SMALL OSCILLATION	SOUND 1
LARGE OSCILLATION	SOUND 2
SUBTLE OSCILLATION	SOUND 3

FIG. 21C

IC TAG DATA TABLE

IDENTIFICATION DATA 1		IDENTIFICATION DATA 2		IDENTIFICATION DATA 3	
CLASSIFICATION	NUMBER OF DOTS	CLASSIFICATION	NUMBER OF DOTS	CLASSIFICATION	NUMBER OF DOTS
RED	6	WHITE	3	BLACK	5

FIG. 22C

INFRARED CAMERA CAPTURING DATA TABLE

X	Y	181	182	183	184	185	186	187
-50	55	○	○	×	○	×	○	○

FIG. 20D

RENDERED EFFECT TABLE

OSCILLATION MODE	TYPE OF SOUND
SMALL OSCILLATION	SOUND 1
LARGE OSCILLATION	SOUND 2
SUBTLE OSCILLATION	SOUND 3

FIG. 21D

IC TAG DATA TABLE

IDENTIFICATION DATA 1		IDENTIFICATION DATA 2		IDENTIFICATION DATA 3	
TYPE	NUMBER OF DOTS	TYPE	NUMBER OF DOTS	TYPE	NUMBER OF DOTS
RED	6	WHITE	3	BLACK	5

FIG. 22D

INFRARED CAMERA CAPTURING DATA TABLE

X	Y	181	182	183	184	185	186	187
-50	55	○	○	×	○	×	○	○

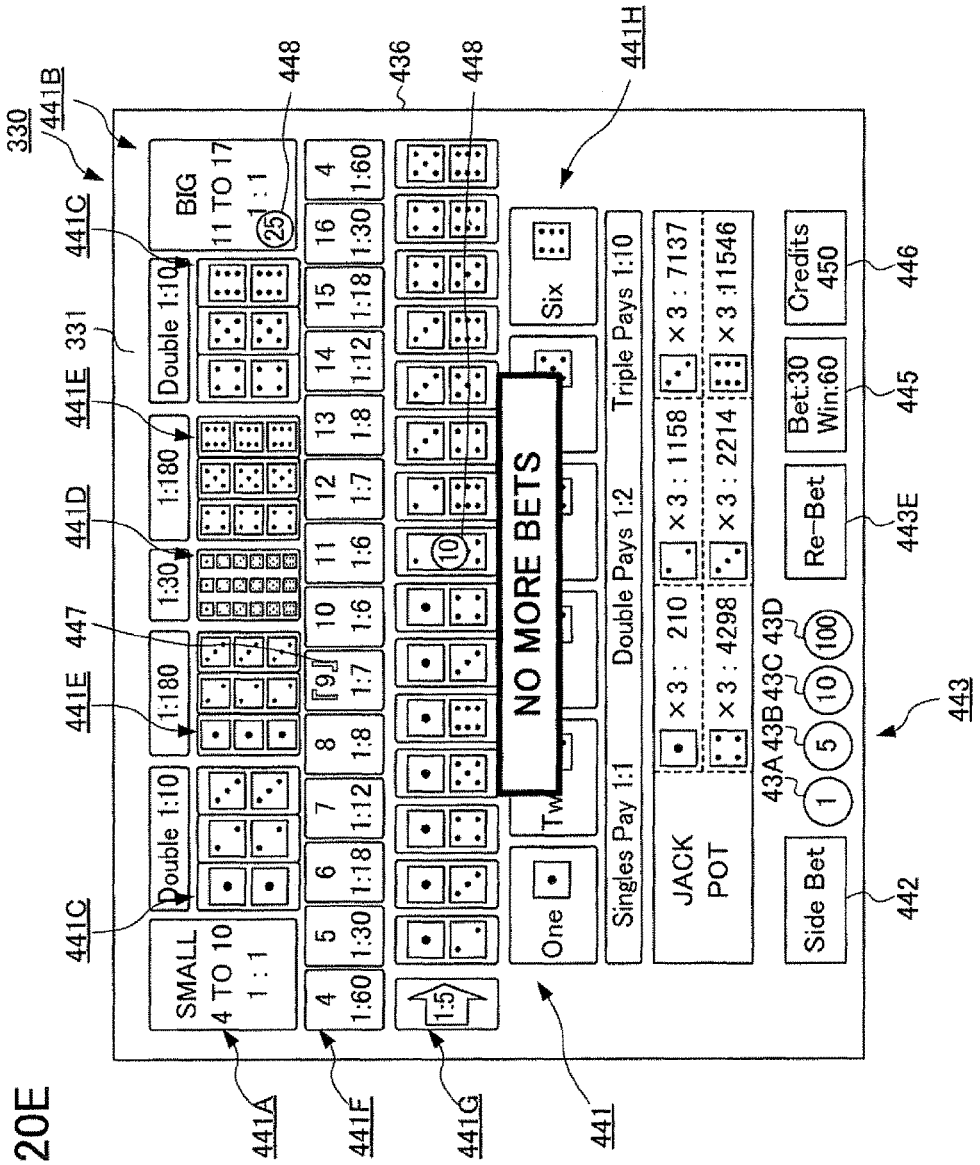

330
441B
441C
441E
331
441D
441E
447
441C
441A
441F
441G
441
441H
448
436
448
SMALL
4 TO 10
1 : 1
Double 1:10
1:180
1:30
1:180
Double 1:10
BIG
11 TO 17
1 : 1
25
4
1:60
5
1:30
6
1:18
7
1:12
8
1:8
9
1:7
10
1:6
11
1:6
12
1:7
13
1:8
14
1:12
15
1:18
16
1:30
4
1:60
1:5
One
Two
NO MORE BETS
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK POT
× 3 : 210
× 3 : 4298
× 3 : 1158
× 3 : 2214
× 3 : 7137
× 3 :11546
43A
43B
43C
43D
1
5
10
100
Side Bet
Re-Bet
Bet:30
Win:60
Credits
450
442
443E
445
446
443

FIG. 20E

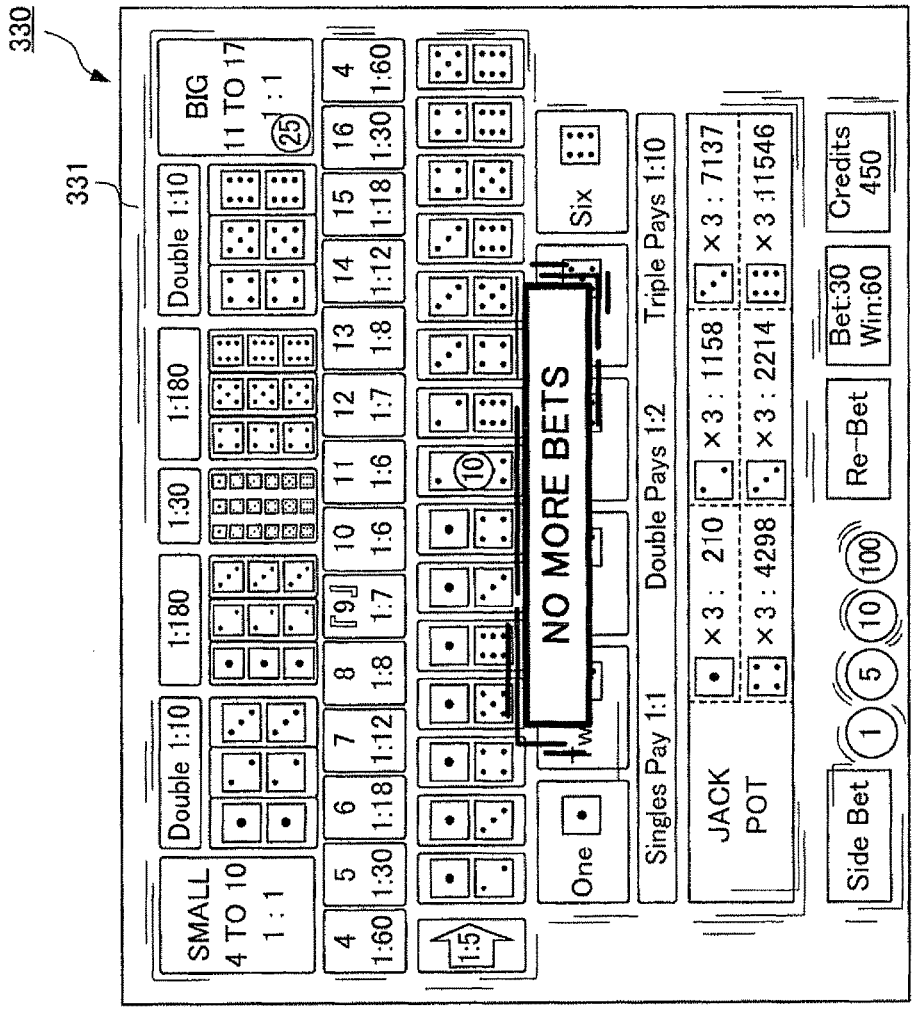

330
331
SMALL
4 TO 10
1 : 1
Double 1:10
1:180
1:30
1:180
Double 1:10
BIG
11 TO 17
: 1
25
4 1:60
5 1:30
6 1:18
7 1:12
8 1:8
9
10 1:6
11 1:6
12 1:7
13 1:8
14 1:12
15 1:18
16 1:30
4 1:60
1:5
NO MORE BETS
One
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK POT
× 3 : 210
× 3 : 1158
× 3 : 7137
× 3 : 4298
× 3 : 2214
× 3 :11546
Side Bet
1
5
10
100
Re-Bet
Bet:30
Win:60
Credits
450

FIG. 21E

FIG. 22E

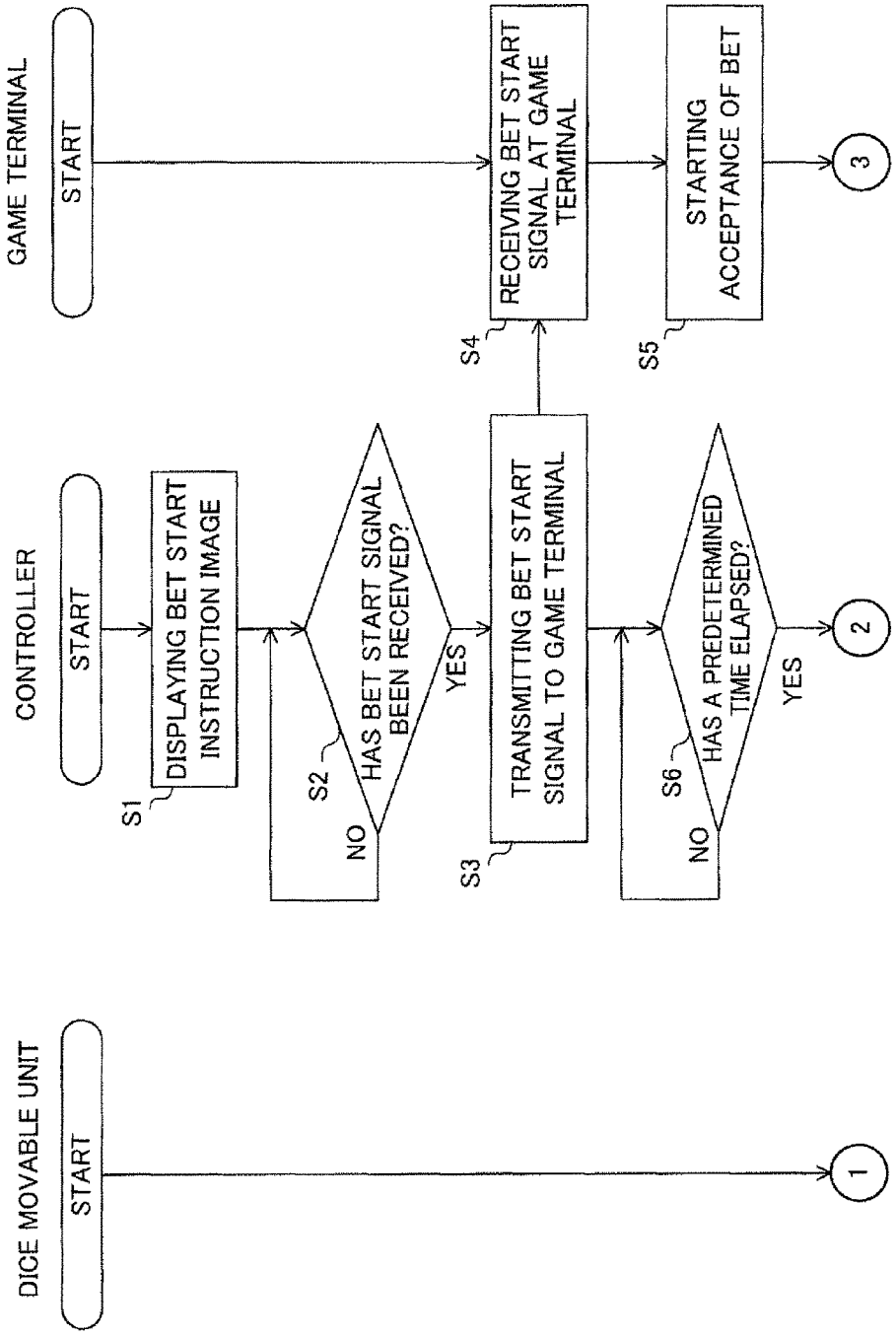

GAME TERMINAL
START
RECEIVING BET START SIGNAL AT GAME TERMINAL
S4
STARTING ACCEPTANCE OF BET
S5
3
CONTROLLER
START
DISPLAYING BET START INSTRUCTION IMAGE
S1
HAS BET START SIGNAL BEEN RECEIVED?
S2
NO
YES
TRANSMITTING BET START SIGNAL TO GAME TERMINAL
S3
HAS A PREDETERMINED TIME ELAPSED?
S6
NO
YES
2
DICE MOVABLE UNIT
START
1

FIG. 23A

DOT PATTERN DATA CLASSIFICATION TABLE

DOT	EXISTENCE OF INFRARED ABSORPTION INK							
181	×	○	×	×	○	○	×	○
182	×	×	○	×	○	×	○	○
183	×	×	×	○	×	○	○	○
COLOR	–	–	–	–	RED	WHITE	BLACK	–

FIG. 24A

NUMBER OF DOTS-DOT PATTERN DATA TABLE

DOT	EXISTENCE OF INFRARED ABSORPTION INK															
184	×	○	×	×	×	○	○	○	×	×	×	○	○	○	×	○
185	×	×	○	×	×	○	×	×	○	○	×	○	○	×	○	○
186	×	×	×	○	×	×	○	×	○	×	○	○	×	○	○	○
187	×	×	×	×	○	×	×	○	×	○	○	×	○	○	○	○
NUMBER OF DOTS	–	–	–	–	–	–	–	1	2	–	–	3	4	5	6	–

FIG. 23B

DOT PATTERN DATA CLASSIFICATION TABLE

DOT	EXISTENCE OF INFRARED ABSORPTION INK							
181	×	○	×	×	○	○	×	○
182	×	×	○	×	○	×	○	○
183	×	×	×	○	×	○	○	○
COLOR	–	–	–	–	RED	WHITE	BLACK	–

FIG. 24B

NUMBER OF DOTS-DOT PATTERN DATA TABLE

DOT	EXISTENCE OF INFRARED ABSORPTION INK															
184	×	○	×	×	×	○	○	○	×	×	×	○	○	○	×	○
185	×	×	○	×	×	○	×	×	○	○	×	○	○	×	○	○
186	×	×	×	○	×	×	○	×	○	×	○	○	×	○	○	○
187	×	×	×	×	○	×	×	○	×	○	○	×	○	○	○	○
NUMBER OF DOTS	–	–	–	–	–	–	–	1	2	–	–	3	4	5	6	–

FIG. 23C

DOT PATTERN DATA CLASSIFICATION TABLE

DOT	EXISTENCE OF INFRARED ABSORPTION INK							
181	×	○	×	×	○	○	×	○
182	×	×	○	×	○	×	○	○
183	×	×	×	○	×	○	○	○
COLOR	–	–	–	–	RED	WHITE	BLACK	–

FIG. 24C

NUMBER OF DOTS-DOT PATTERN DATA TABLE

DOT	EXISTENCE OF INFRARED ABSORPTION INK															
184	×	○	×	×	×	○	○	○	×	×	×	○	○	○	×	○
185	×	×	○	×	×	○	×	×	○	○	×	○	○	×	○	○
186	×	×	×	○	×	×	○	×	○	×	○	○	×	○	○	○
187	×	×	×	×	○	×	×	○	×	○	○	×	○	○	○	○
NUMBER OF DOTS	–	–	–	–	–	–	–	1	2	–	–	3	4	5	6	–

FIG. 23D

DOT PATTERN DATA CLASSIFICATION TABLE

DOT	EXISTENCE OF INFRARED ABSORPTION INK							
181	×	○	×	×	○	○	×	○
182	×	×	○	×	○	×	○	○
183	×	×	×	○	×	○	○	○
COLOR	–	–	–	–	RED	WHITE	BLACK	–

FIG. 24D

NUMBER OF DOTS-DOT PATTERN DATA TABLE

DOT	EXISTENCE OF INFRARED ABSORPTION INK															
184	×	○	×	×	×	○	○	○	×	×	×	○	○	○	×	○
185	×	×	○	×	×	○	×	×	○	○	×	○	○	×	○	○
186	×	×	×	○	×	×	○	×	○	×	○	○	×	○	○	○
187	×	×	×	×	○	×	×	○	×	○	○	×	○	○	○	○
NUMBER OF DOTS	–	–	–	–	–	–	–	1	2	–	–	3	4	5	6	–

FIG. 23E

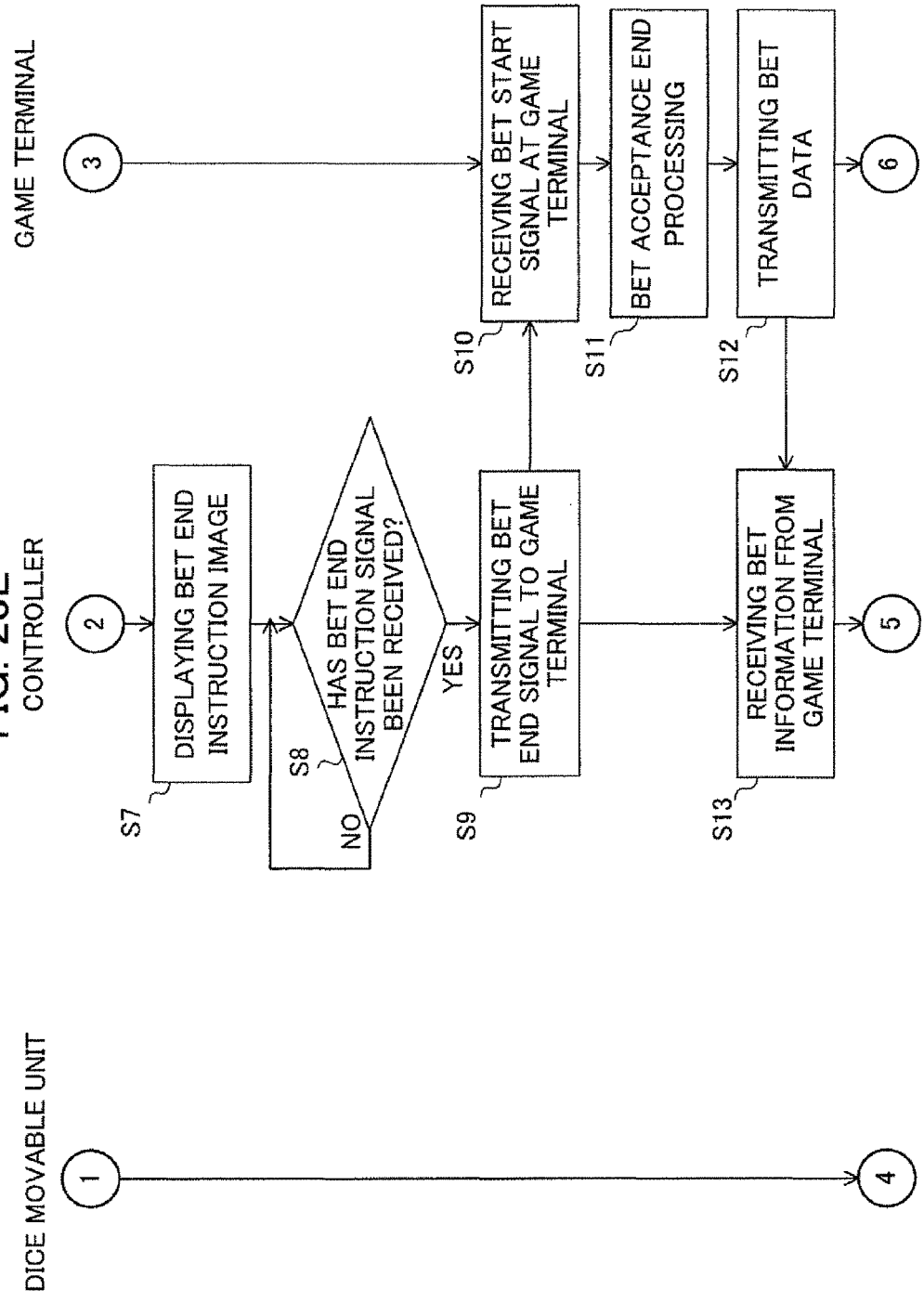

DICE MOVABLE UNIT
CONTROLLER
GAME TERMINAL
1
2
3
4
5
6
DISPLAYING BET END INSTRUCTION IMAGE
S7
HAS BET END INSTRUCTION SIGNAL BEEN RECEIVED?
S8
NO
YES
TRANSMITTING BET END SIGNAL TO GAME TERMINAL
S9
RECEIVING BET START SIGNAL AT GAME TERMINAL
S10
BET ACCEPTANCE END PROCESSING
S11
TRANSMITTING BET DATA
S12
RECEIVING BET INFORMATION FROM GAME TERMINAL
S13

FIG. 24E

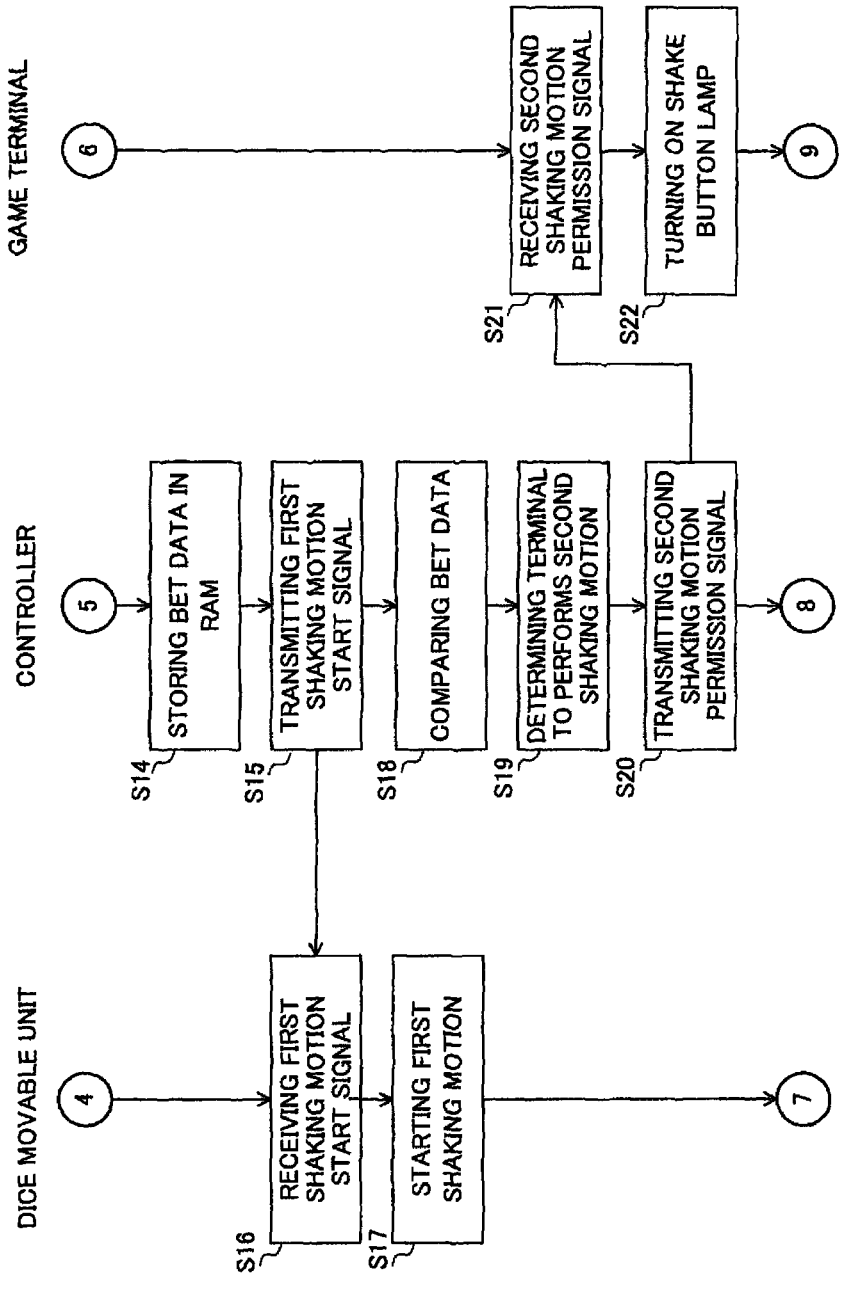

GAME TERMINAL
CONTROLLER
DICE MOVABLE UNIT
6
5
4
STORING BET DATA IN RAM
TRANSMITTING FIRST SHAKING MOTION START SIGNAL
COMPARING BET DATA
DETERMINING TERMINAL TO PERFORMS SECOND SHAKING MOTION
TRANSMITTING SECOND SHAKING MOTION PERMISSION SIGNAL
RECEIVING SECOND SHAKING MOTION PERMISSION SIGNAL
TURNING ON SHAKE BUTTON LAMP
RECEIVING FIRST SHAKING MOTION START SIGNAL
STARTING FIRST SHAKING MOTION
S14
S15
S16
S17
S18
S19
S20
S21
S22
8
9
7

FIG.25A

CLASSIFICATION OF DICE																					
RED	NUMBER OF DOTS	X	Y	NUMBER OF DOTS	X	Y	...	NUMBER OF DOTS	X	Y	...	NUMBER OF DOTS	X	Y	...	NUMBER OF DOTS	X	Y	...		
	3	44	62	5	62	−50	...	5	−54	−90	...	1	70	5	...						
WHITE	NUMBER OF DOTS	X	Y	NUMBER OF DOTS	X	Y	...	NUMBER OF DOTS	X	Y	...	NUMBER OF DOTS	X	Y	...						
	2	−35	50	5	−30	−45	...	3	1	38	...	6	40	−10	...						
BLACK	NUMBER OF DOTS	X	Y	NUMBER OF DOTS	X	Y	...	NUMBER OF DOTS	X	Y	...	NUMBER OF DOTS	X	Y	...						
	6	48	−20	4	−20	55	...	2	1	−36	...	2	20	−50	...						

FIG. 25B

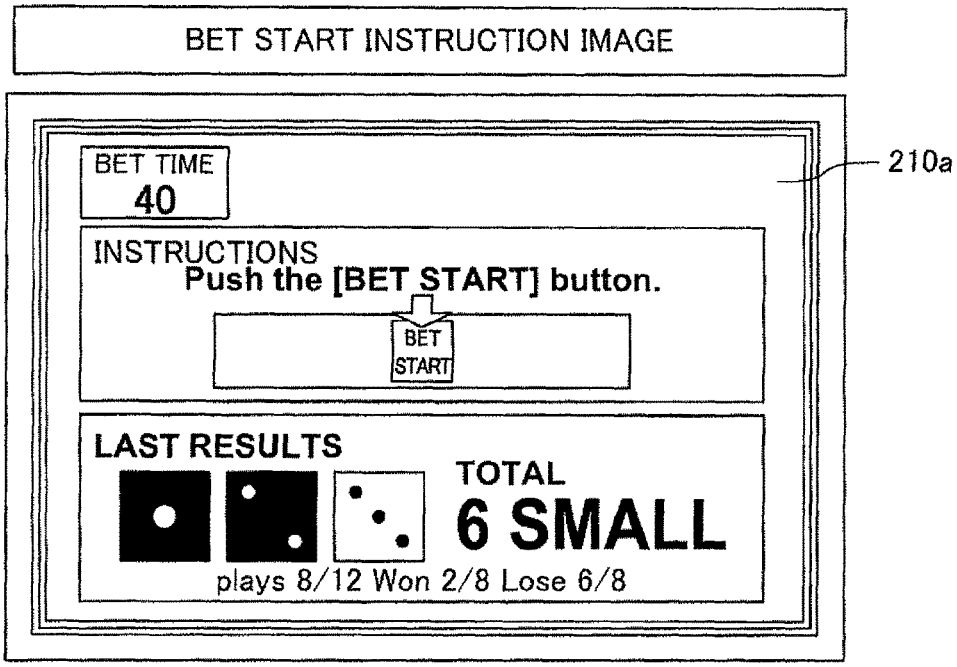


FIG. 26B

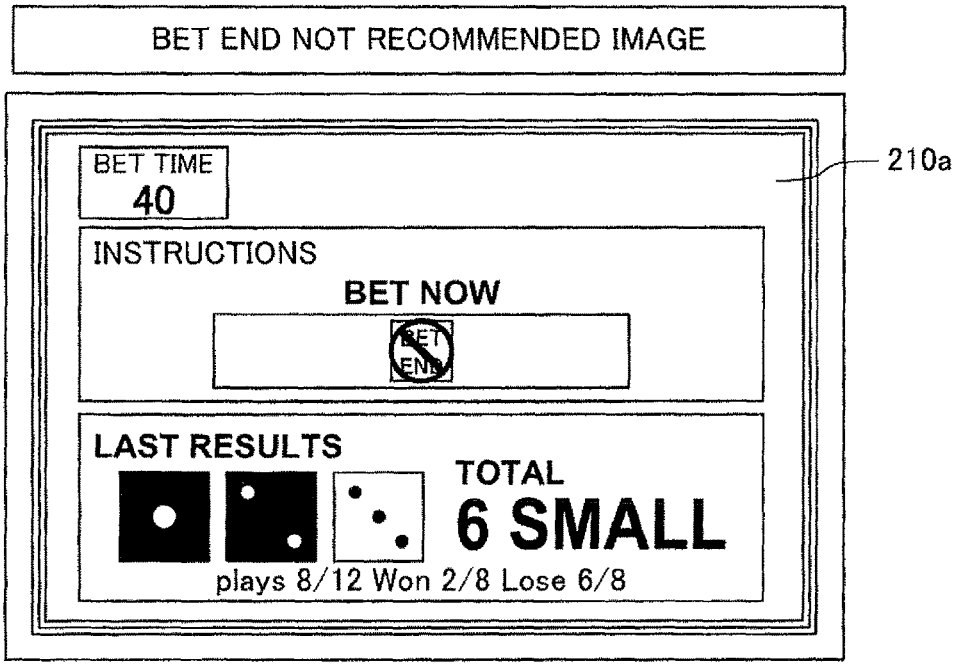


FIG. 25C

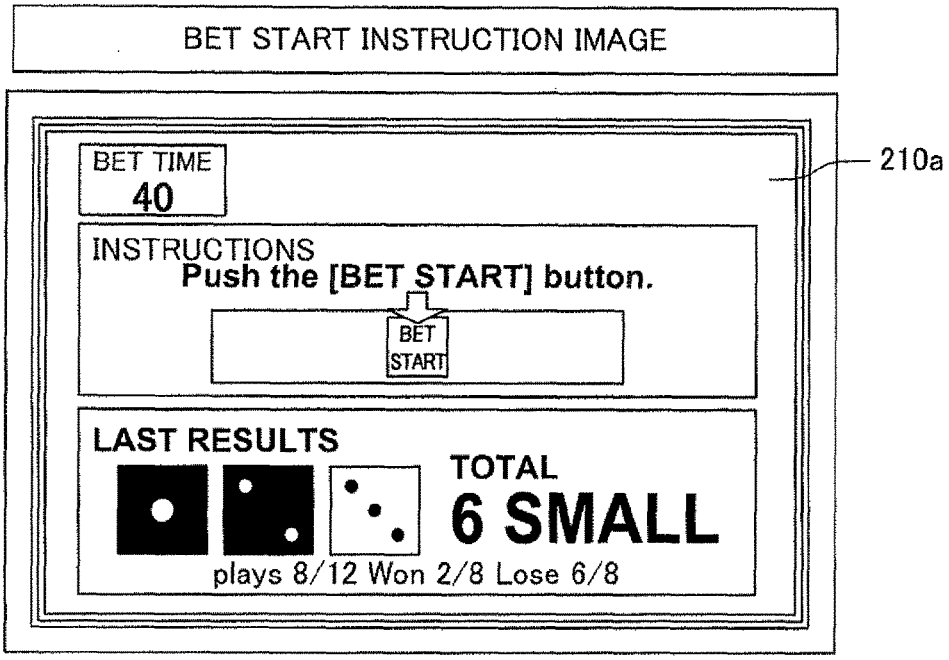


FIG. 26C

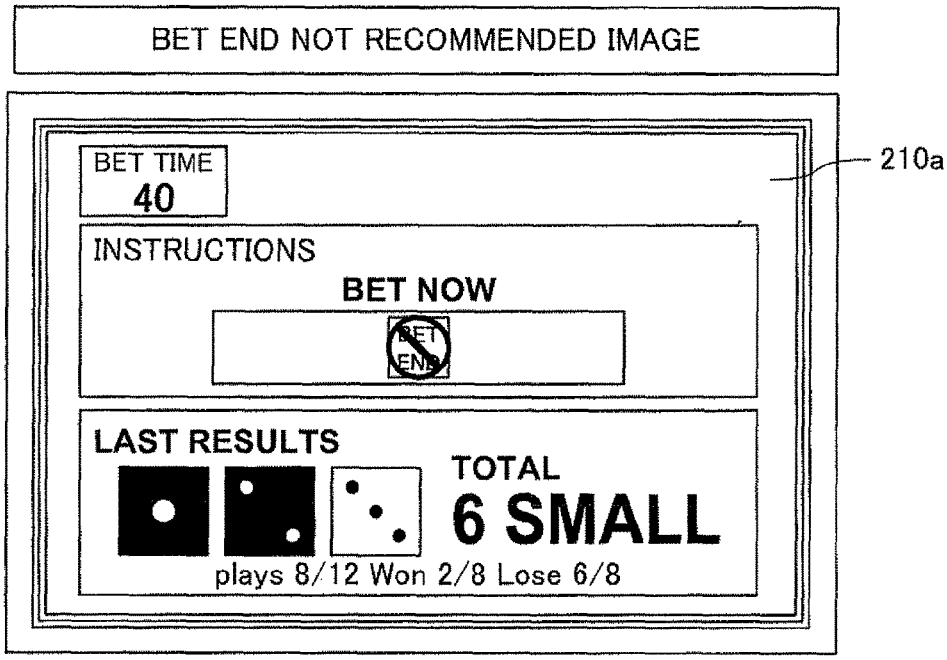


FIG. 25D

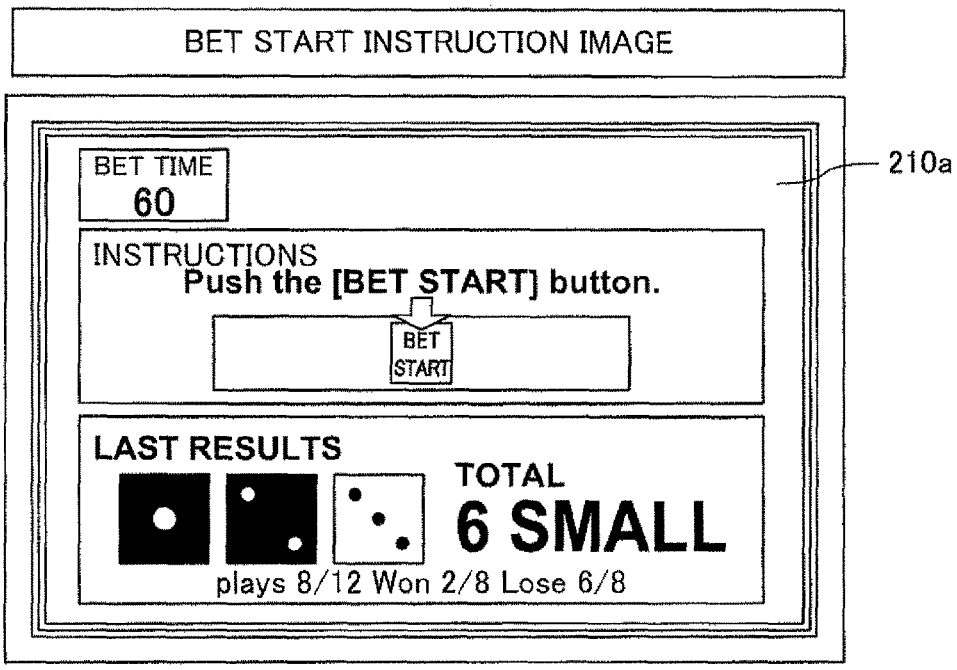


FIG. 26D

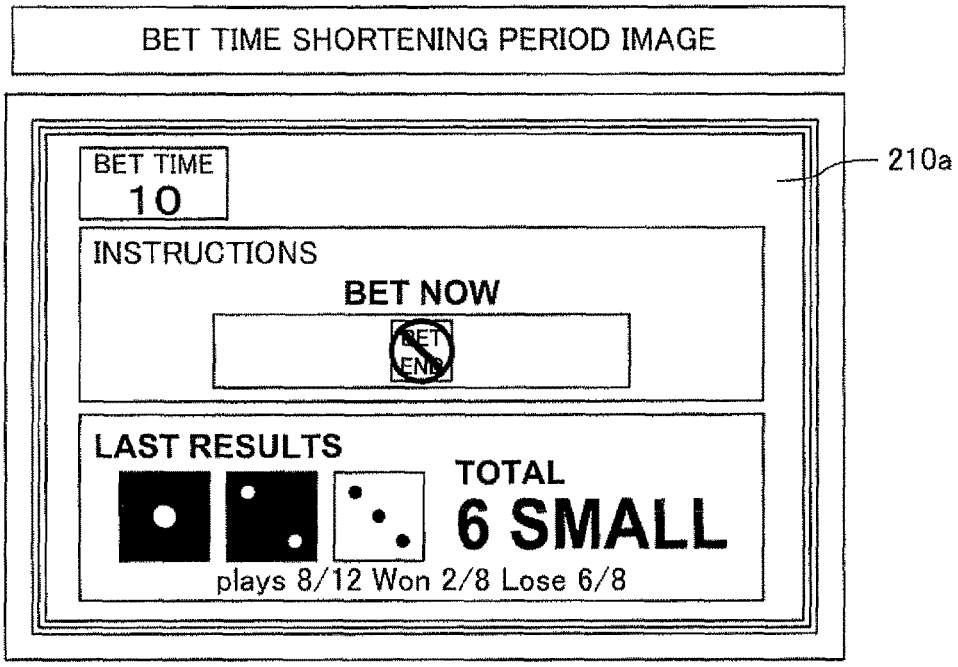


FIG. 25E

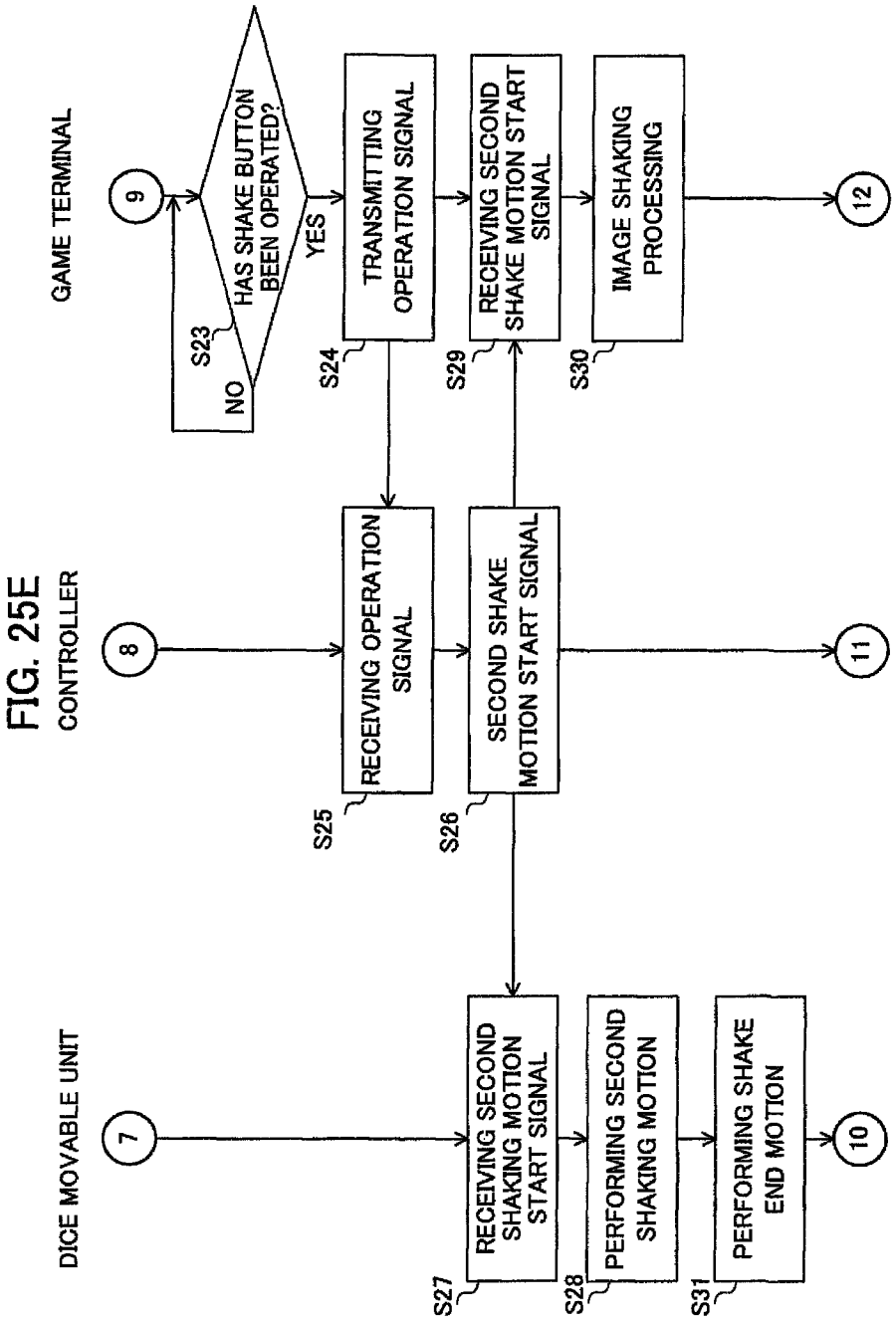

GAME TERMINAL
CONTROLLER
DICE MOVABLE UNIT
9
8
7
HAS SHAKE BUTTON BEEN OPERATED?
S23
NO
YES
TRANSMITTING OPERATION SIGNAL
S24
RECEIVING SECOND SHAKE MOTION START SIGNAL
S29
IMAGE SHAKING PROCESSING
S30
12
RECEIVING OPERATION SIGNAL
S25
SECOND SHAKE MOTION START SIGNAL
S26
11
RECEIVING SECOND SHAKING MOTION START SIGNAL
S27
PERFORMING SECOND SHAKING MOTION
S28
PERFORMING SHAKE END MOTION
S31
10

FIG. 26A

TYPE AND NUMBER OF DOTS DATA TABLE

	NUMBER OF GAMES	1	2	...	100	...	500	...
TYPE OF DICE	RED	NUMBER OF DOTS	NUMBER OF DOTS	...	NUMBER OF DOTS	...	NUMBER OF DOTS	...
		3	5	...	5	...	1	...
	WHITE	NUMBER OF DOTS	NUMBER OF DOTS	...	NUMBER OF DOTS	...	NUMBER OF DOTS	...
		2	5	...	3	...	6	...
	BLACK	NUMBER OF DOTS	NUMBER OF DOTS	...	NUMBER OF DOTS	...	NUMBER OF DOTS	...
		6	4	...	2	...	2	...

FIG. 27A

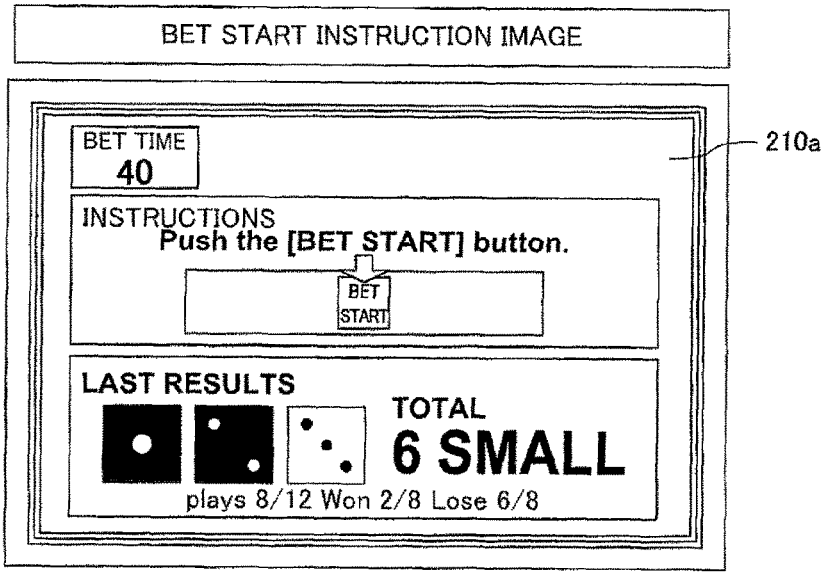


FIG. 26E

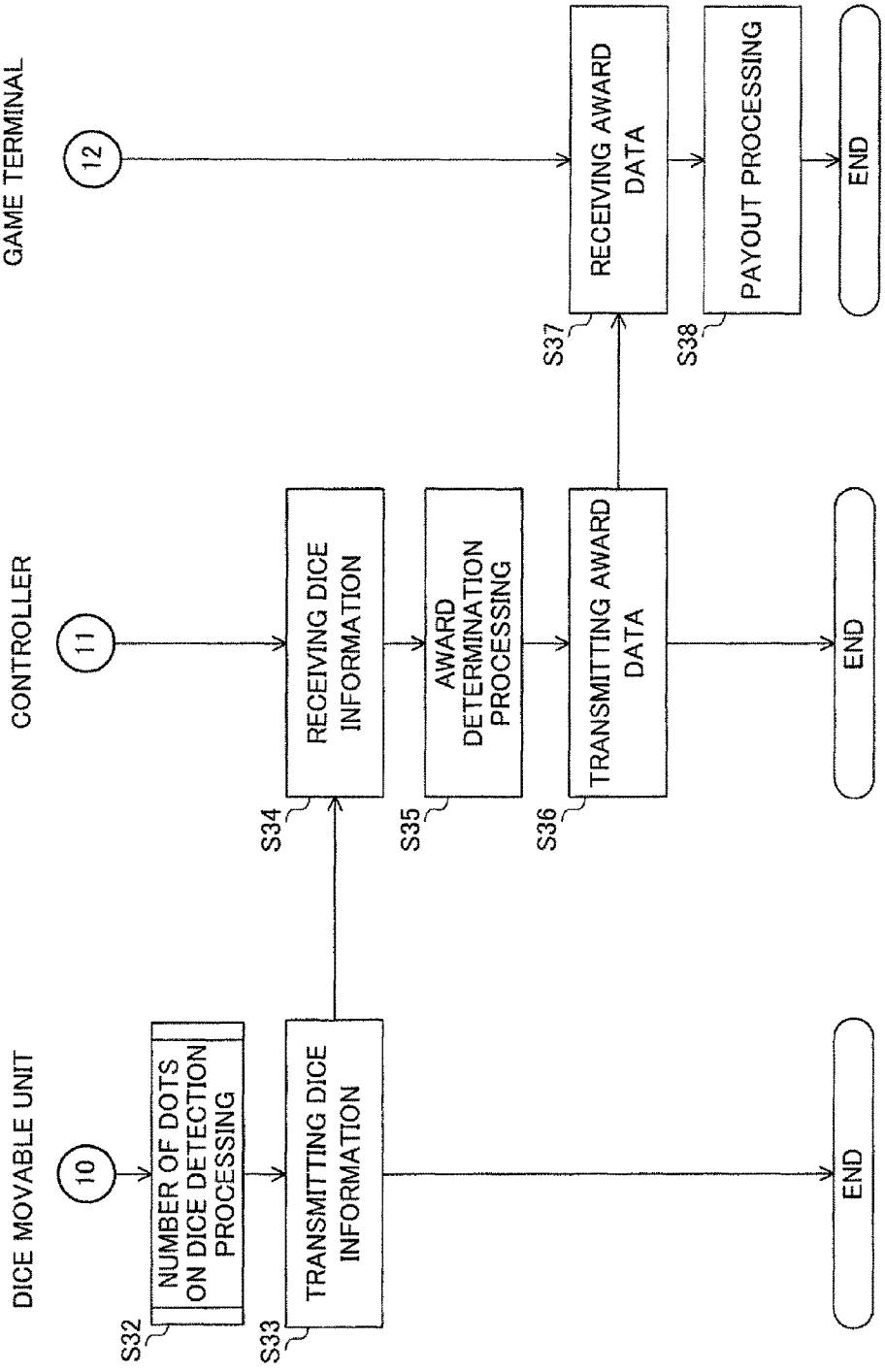

DICE MOVABLE UNIT
CONTROLLER
GAME TERMINAL
10
11
12
NUMBER OF DOTS ON DICE DETECTION PROCESSING
S32
TRANSMITTING DICE INFORMATION
S33
RECEIVING DICE INFORMATION
S34
AWARD DETERMINATION PROCESSING
S35
TRANSMITTING AWARD DATA
S36
RECEIVING AWARD DATA
S37
PAYOUT PROCESSING
S38
END
END
END

FIG. 27B

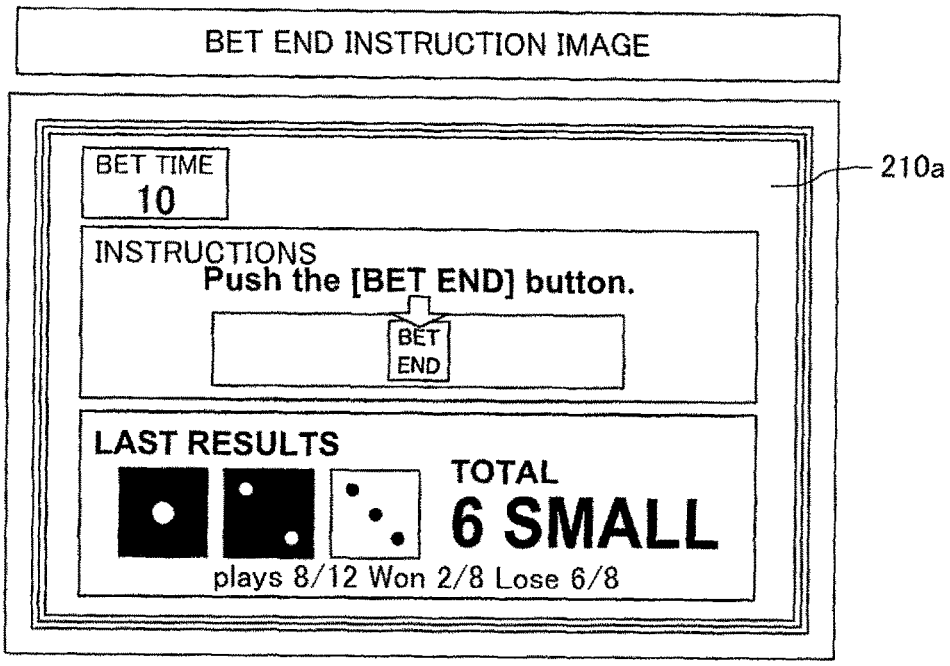

BET END INSTRUCTION IMAGE
BET TIME
10
210a
INSTRUCTIONS
Push the [BET END] button.
BET
END
LAST RESULTS
TOTAL
6 SMALL
plays 8/12 Won 2/8 Lose 6/8

FIG. 27C

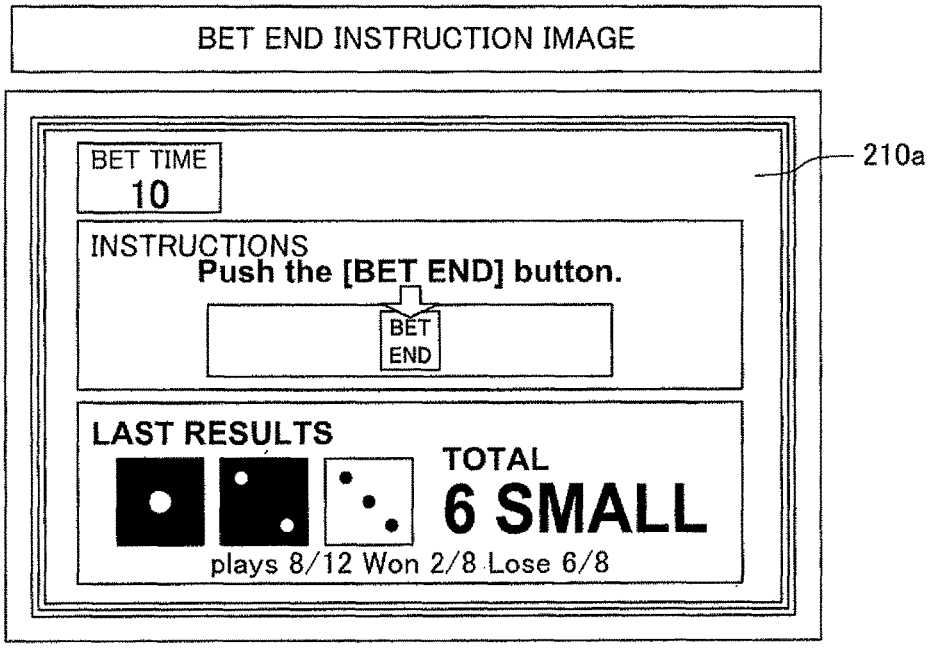

BET END INSTRUCTION IMAGE
BET TIME
10
INSTRUCTIONS
Push the [BET END] button.
BET
END
LAST RESULTS
TOTAL
6 SMALL
plays 8/12 Won 2/8 Lose 6/8
210a

FIG. 27D

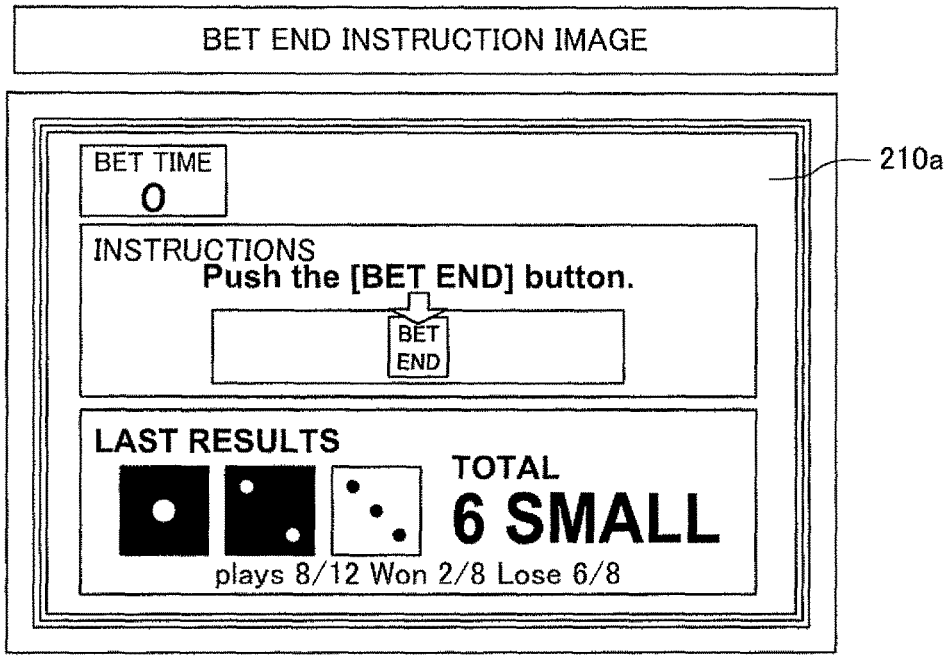

BET END INSTRUCTION IMAGE
210a
BET TIME
0
INSTRUCTIONS
Push the [BET END] button.
BET
END
LAST RESULTS
TOTAL
6 SMALL
plays 8/12 Won 2/8 Lose 6/8

FIG. 27E

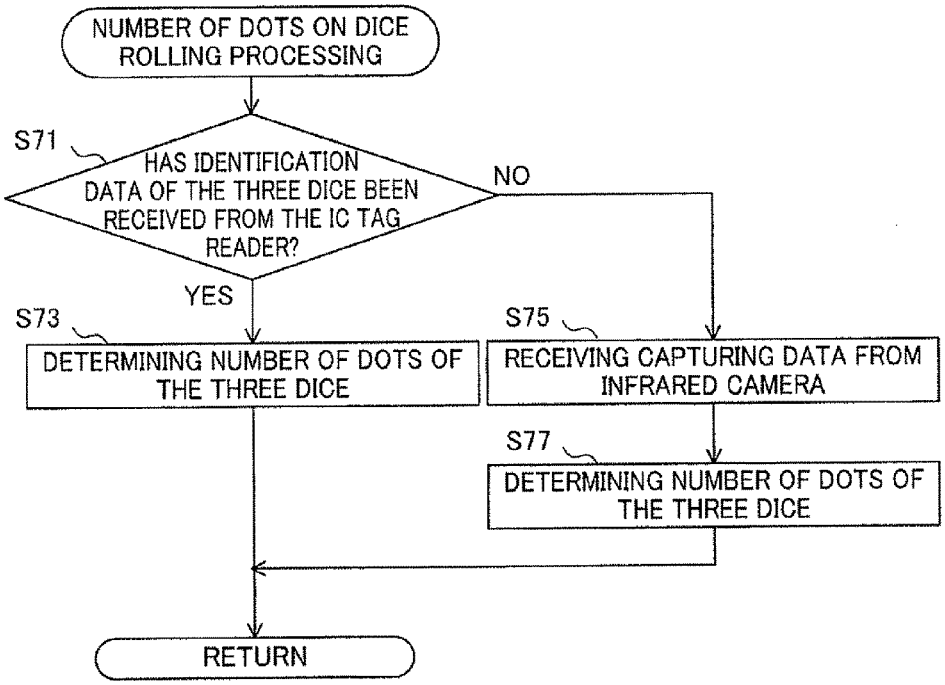

NUMBER OF DOTS ON DICE ROLLING PROCESSING
S71
HAS IDENTIFICATION DATA OF THE THREE DICE BEEN RECEIVED FROM THE IC TAG READER?
NO
YES
S73
DETERMINING NUMBER OF DOTS OF THE THREE DICE
S75
RECEIVING CAPTURING DATA FROM INFRARED CAMERA
S77
DETERMINING NUMBER OF DOTS OF THE THREE DICE
RETURN

FIG. 28A

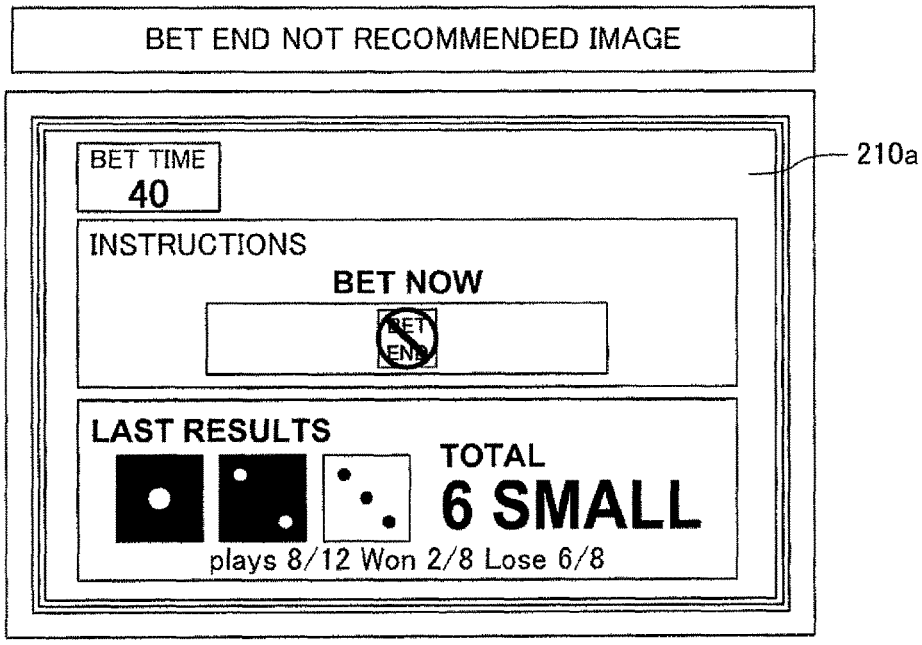
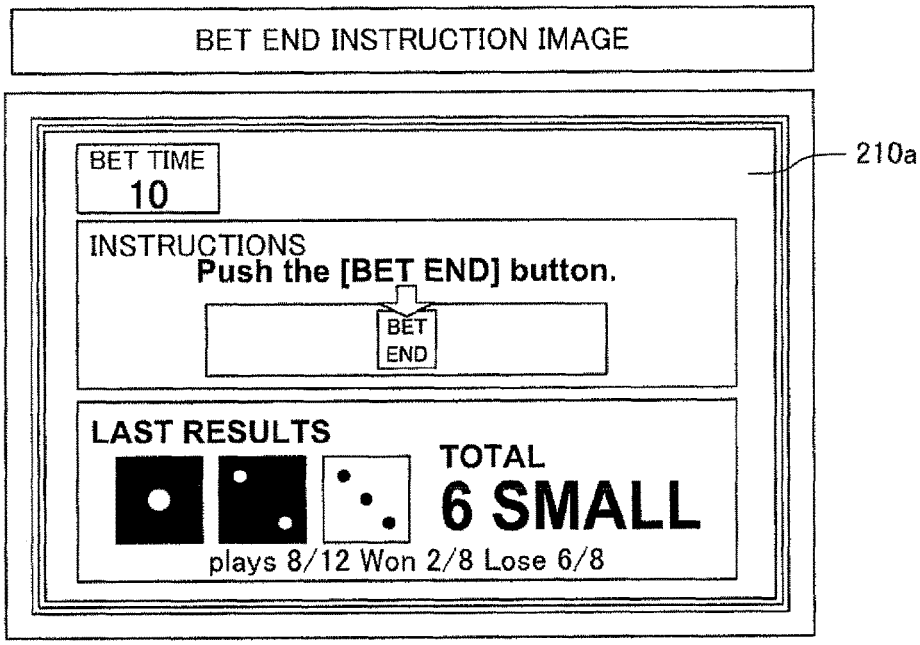


FIG. 29A



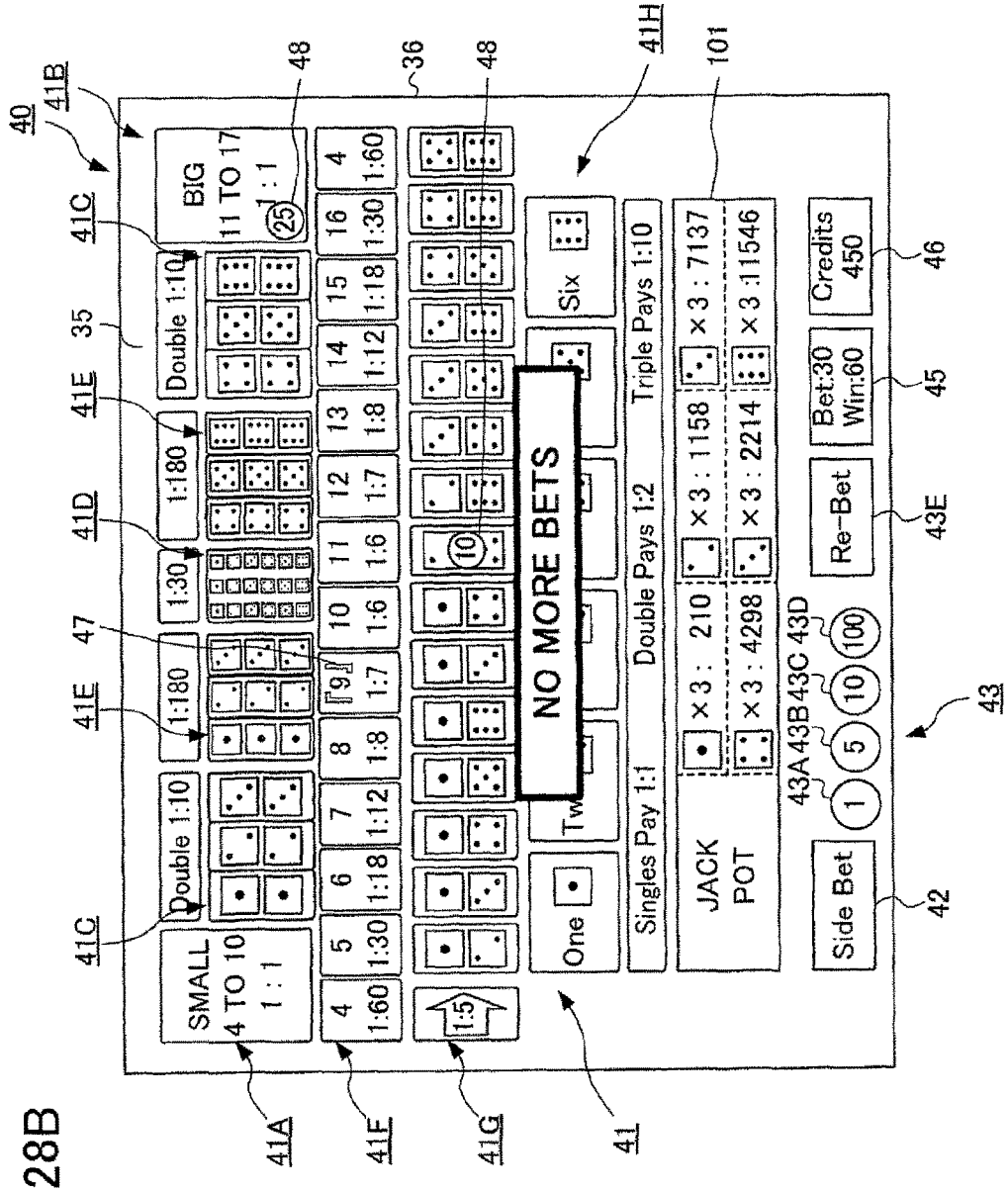

40
41B
41C
41E
41D
41E
47
41C
41A
41F
41G
41
41H
101
48
36
48
35
43
42
46
45
43E
43A
43B
43C
43D
SMALL
4 TO 10
1 : 1
Double 1:10
1:180
1:30
1:180
Double 1:10
BIG
11 TO 17
1 : 1
NO MORE BETS
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK POT
× 3 : 210
× 3 : 4298
× 3 : 1158
× 3 : 2214
× 3 : 7137
× 3 :11546
Side Bet
Re-Bet
Bet:30
Win:60
Credits
450
One
Two

FIG.28B

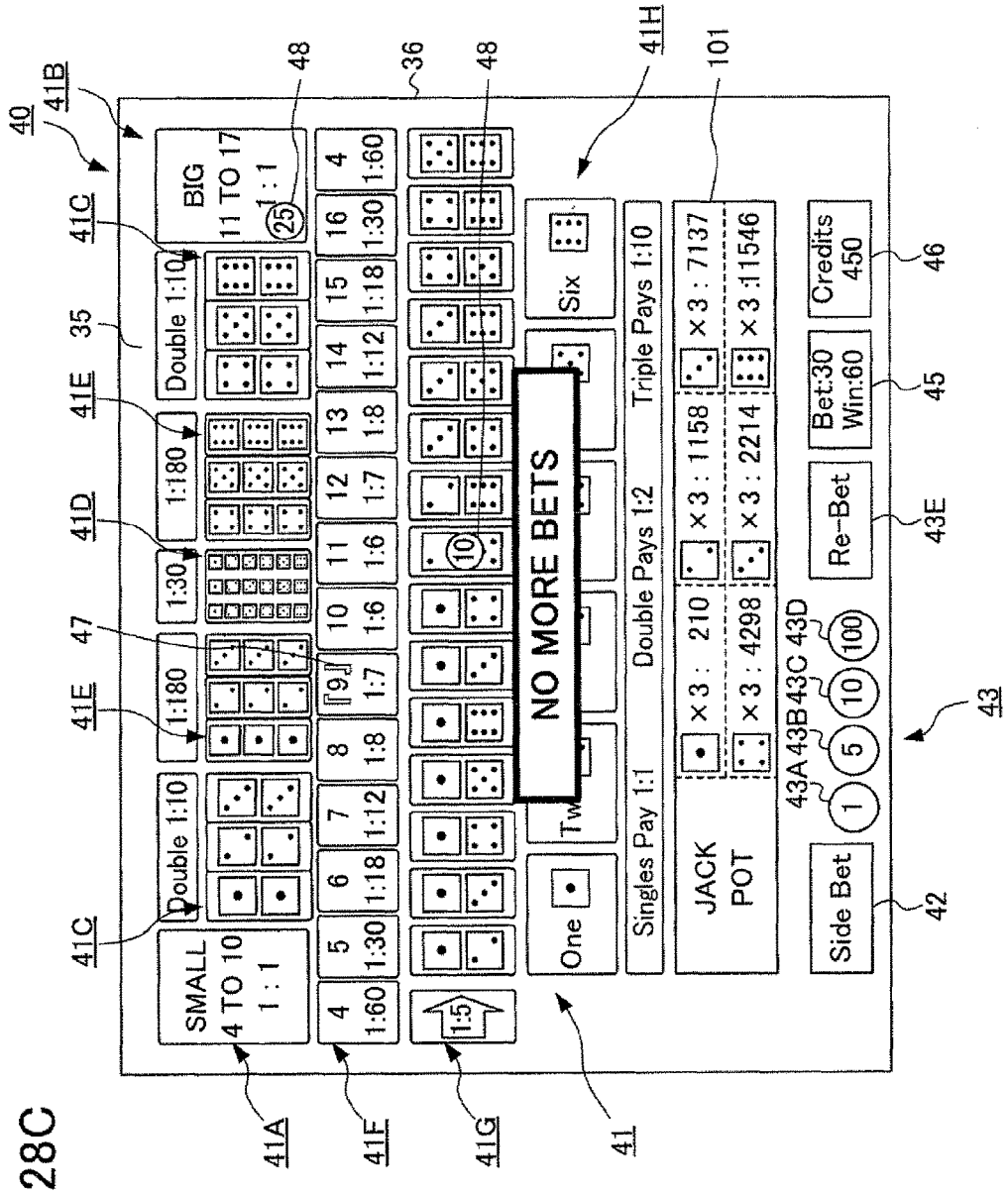

40
41B
41C
41E
41D
41E
47
41C
41A
41F
41G
41
41H
101
48
36
48
35
43
43E
45
46
42
SMALL
4 TO 10
1 : 1
Double 1:10
1:180
1:30
1:180
Double 1:10
BIG
11 TO 17
1 : 1
25
NO MORE BETS
One
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK
POT
× 3 : 210
× 3 : 4298
× 3 : 1158
× 3 : 2214
× 3 : 7137
× 3 :11546
43A 43B 43C 43D
1
5
10
100
Side Bet
Re-Bet
Bet:30
Win:60
Credits
450

FIG.28C

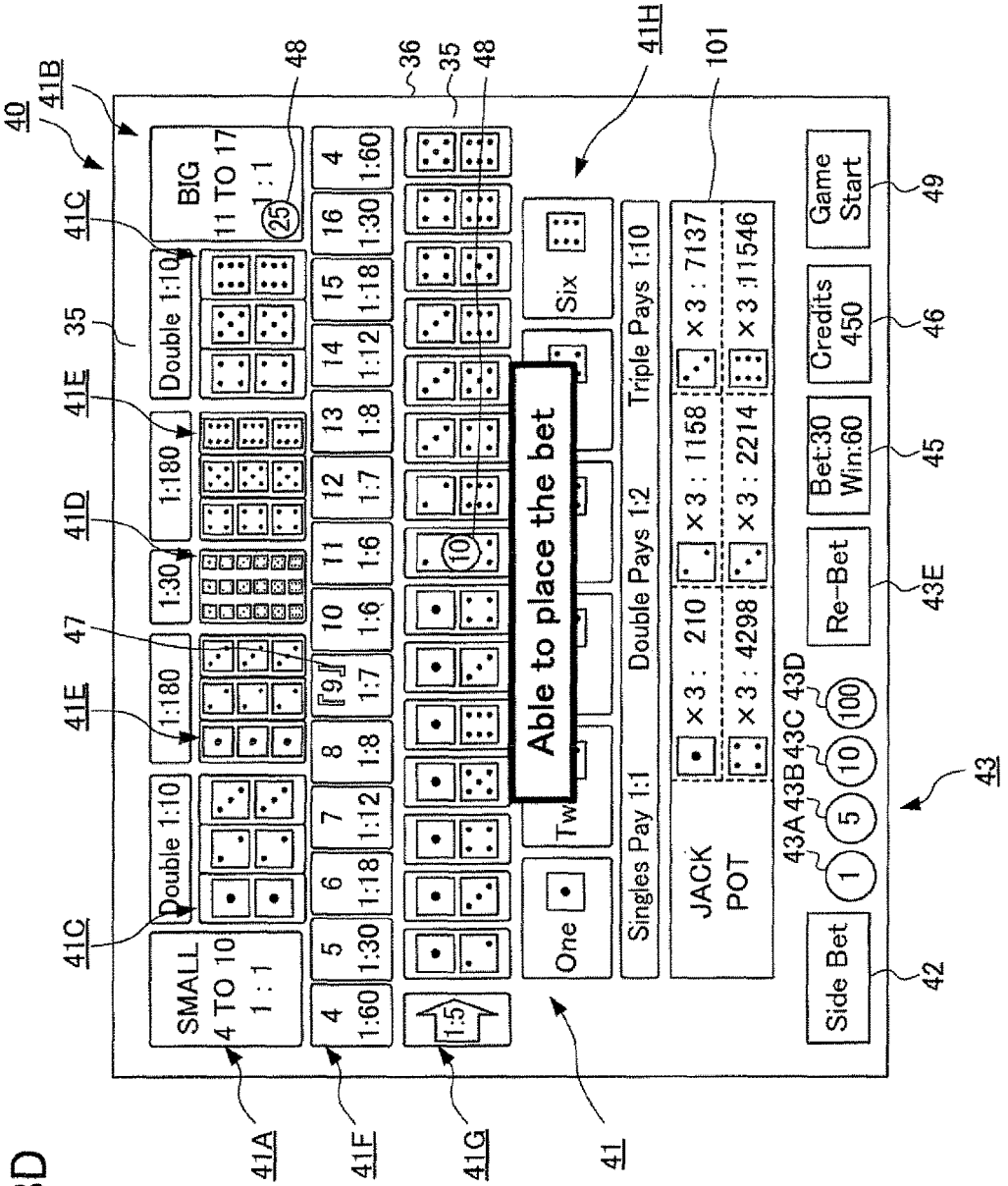
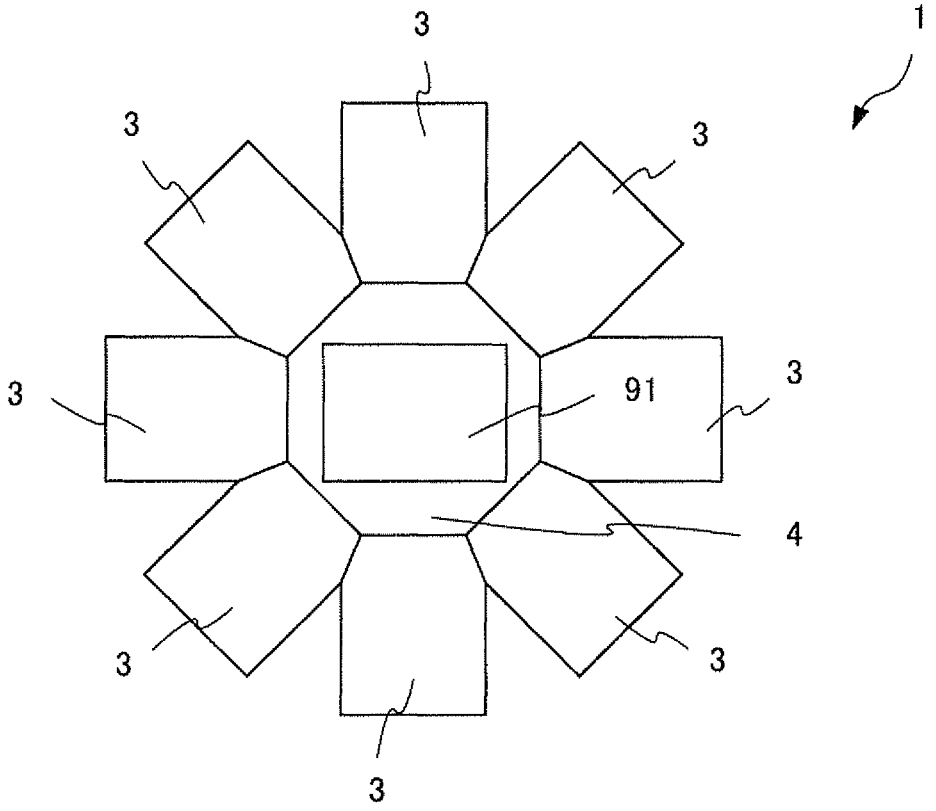

40
41B
41C
41E
41D
41E
47
41C
41A
41F
41G
41
41H
101
48
36
35
48
35
SMALL
4 TO 10
1 : 1
Double 1:10
1:180
1:30
1:180
Double 1:10
BIG
11 TO 17
1 : 1
25
4 1:60
5 1:30
6 1:18
7 1:12
8 1:8
9
10 1:6
11 1:6
12 1:7
13 1:8
14 1:12
15 1:18
16 1:30
4 1:60
1:5
10
One
Two
Able to place the bet
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK POT
× 3 : 210
× 3 : 4298
× 3 : 1158
× 3 : 2214
× 3 : 7137
× 3 :11546
43A 43B 43C 43D
1
5
10
100
Side Bet
Re-Bet
Bet:30
Win:60
Credits
450
Game
Start
42
43E
45
46
49
43

FIG.28D

FIG. 28E



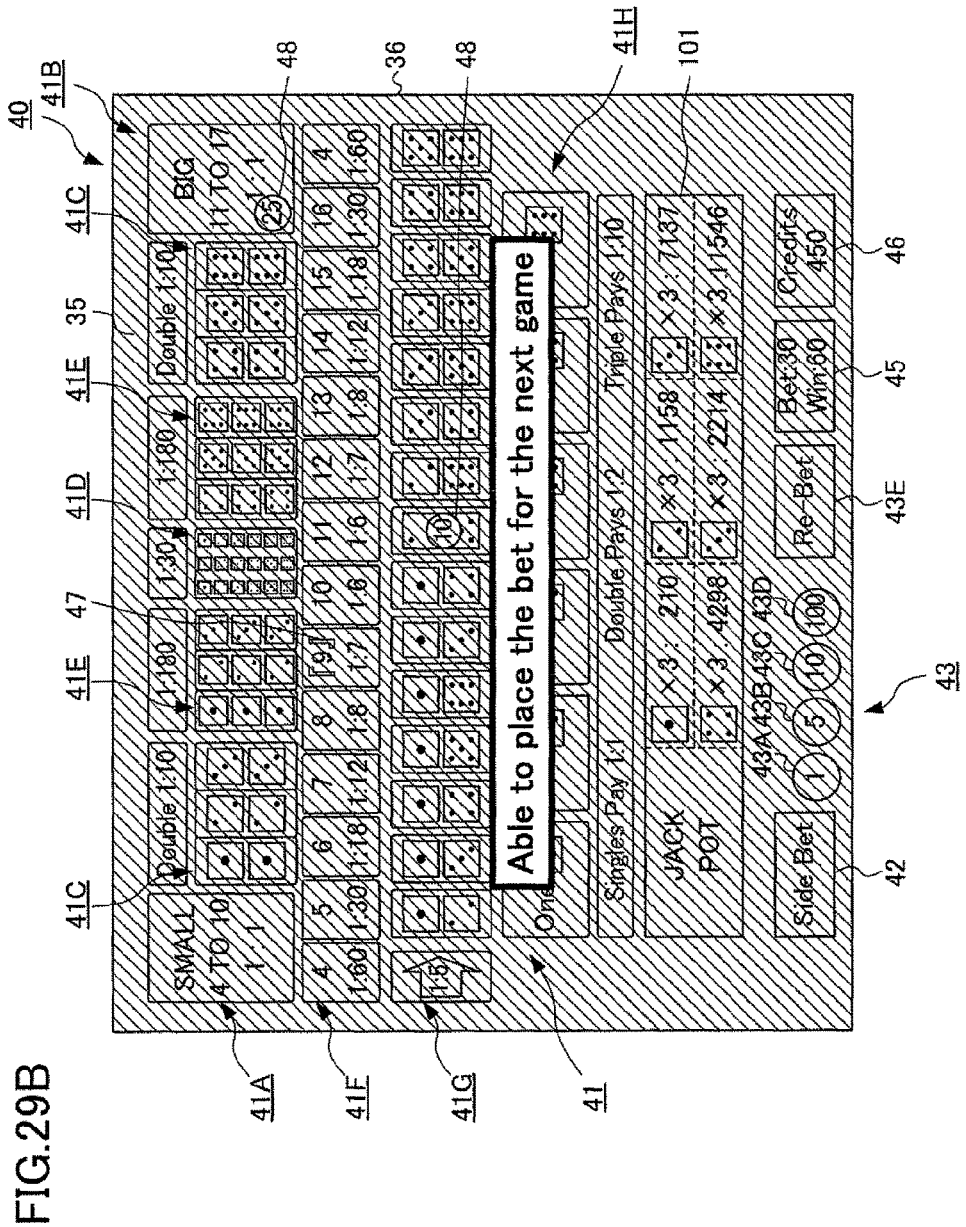

40
41B
41C
41E
41D
41E
41C
41A
41F
41G
41
41H
35
36
47
48
48
101
43
42
46
45
43E
43A
43B
43C
43D
Able to place the bet for the next game
BIG
11 TO 17
Double 1:10
1:180
1:30
1:180
Double 1:10
SMALL
4 TO 10
Triple Pays 1:10
Double Pays 1:2
Singles Pay 1:1
JACK POT
Credits
450
Bet:30
Win:60
Re-Bet
Side Bet

FIG.29B

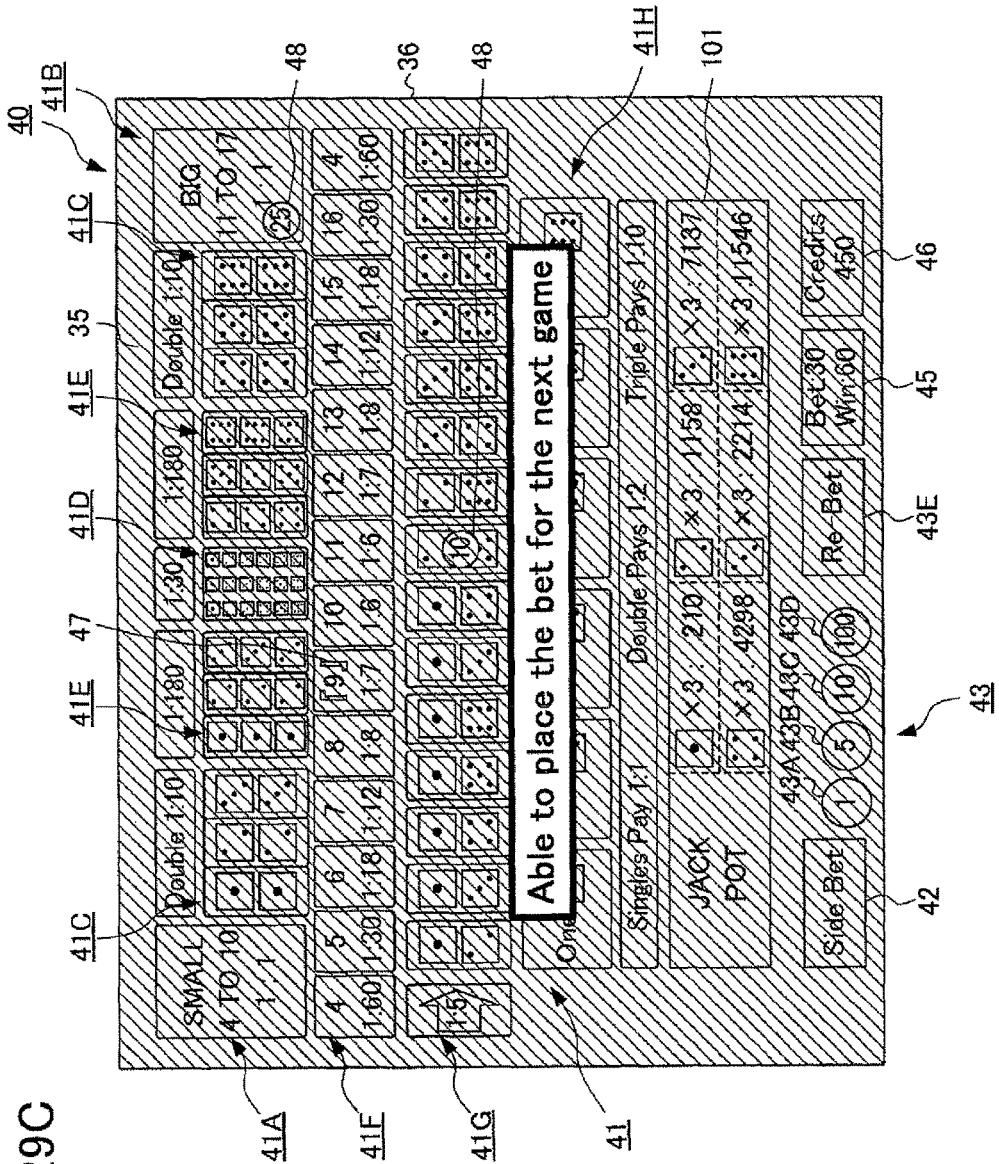

40
41B
41C
41E
41D
41E
41E
41C
41A
41F
41G
41
41H
35
36
47
48
48
101
46
45
43E
43
42
Able to place the bet for the next game
SMALL
4 TO 10
Double 1:10
1:180
1:30
1:18D
Double 1:10
BIG
11 TO 17
Double 1:10
Single Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK POT
Side Bet
Re-Bet
Bet30
Win60
Credits
450
43A
43B
43C
43D

FIG.29C

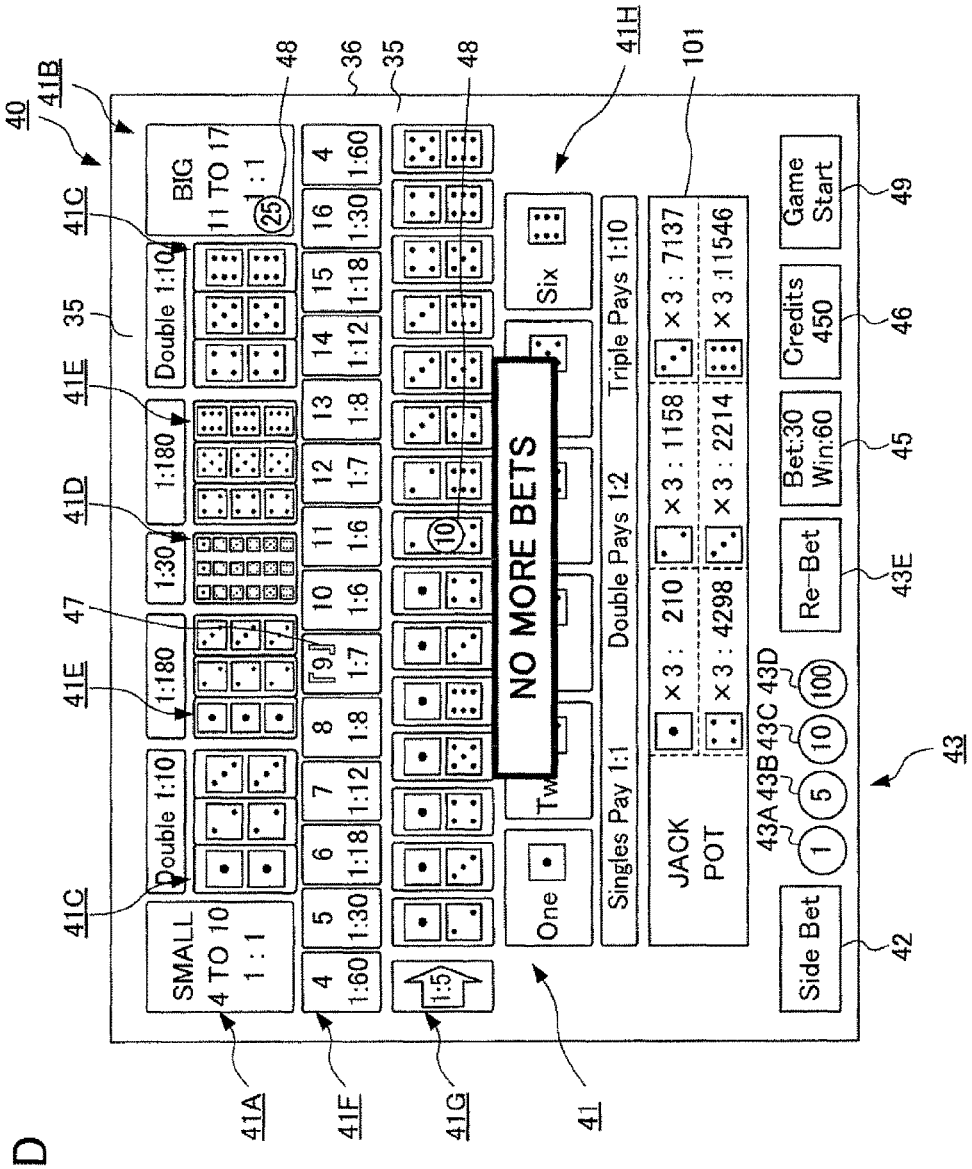
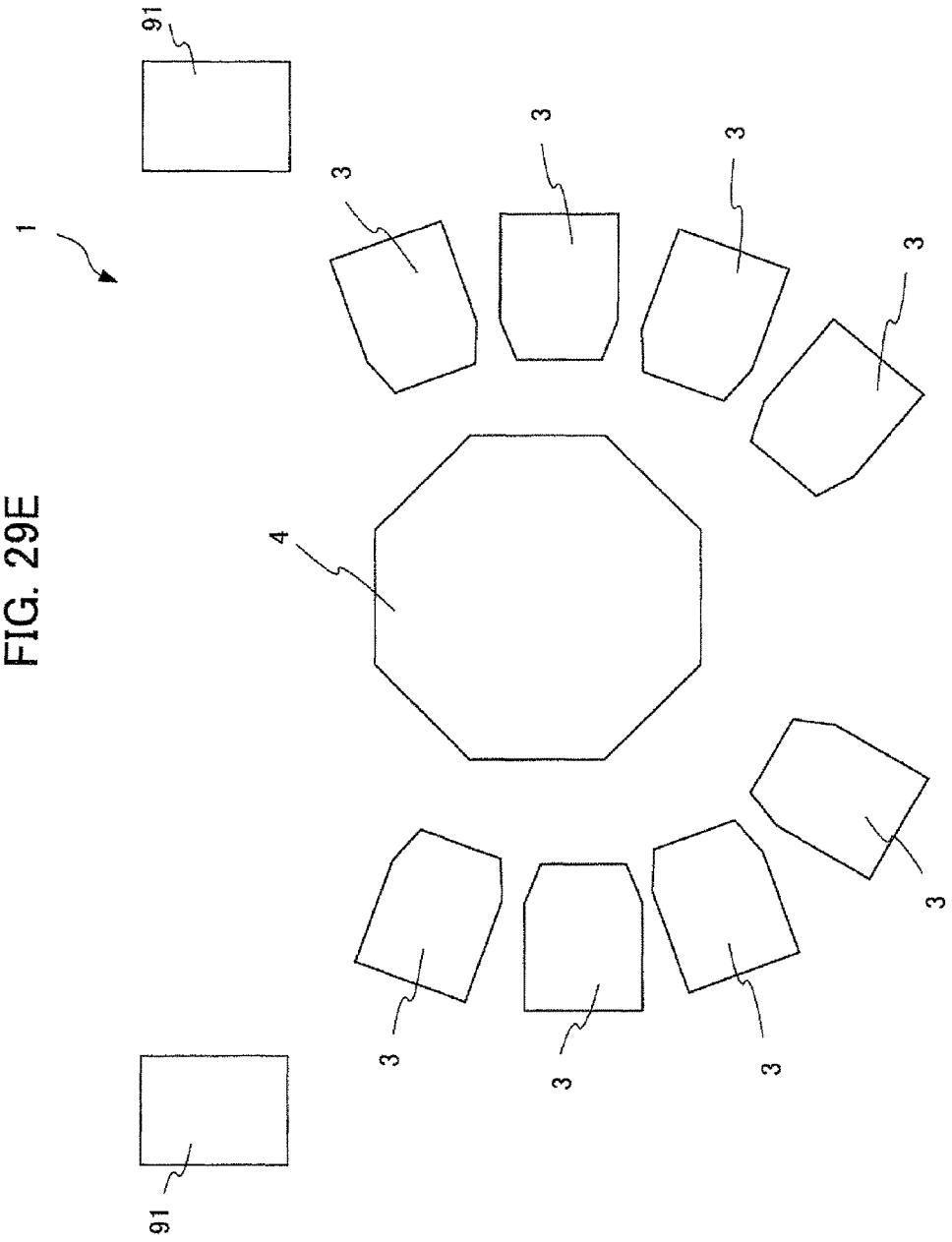

40
41B
41C
41E
41D
41E
47
41C
41A
41F
41G
41
41H
101
48
36
35
48
35
SMALL
4 TO 10
1 : 1
Double 1:10
1:180
1:30
1:180
Double 1:10
BIG
11 TO 17
1 : 1
25
NO MORE BETS
One
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK
POT
× 3 : 210
× 3 : 4298
× 3 : 1158
× 3 : 2214
× 3 : 7137
× 3 :11546
43A 43B 43C 43D
Side Bet
Re-Bet
Bet:30
Win:60
Credits
450
Game
Start
42
43E
45
46
49
43

FIG.29D

FIG. 29E



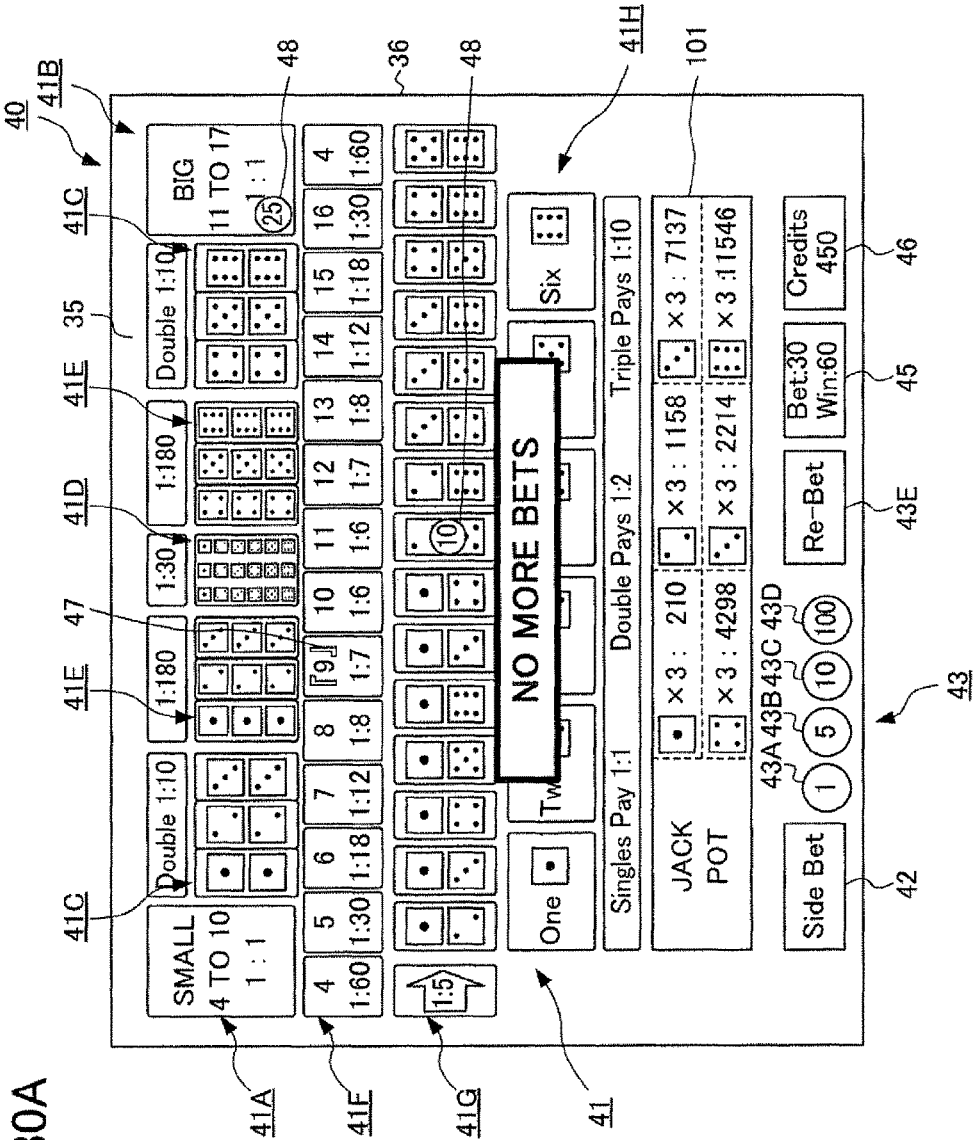

40
41B
41C
41E
41D
41E
41C
41A
41F
41G
41
41H
101
43
42
45
46
43E
35
36
48
47
SMALL
4 TO 10
1 : 1
BIG
11 TO 17
1 : 1
Double 1:10
1:180
1:30
Double 1:10
1:180
NO MORE BETS
One
Six
Singles Pay 1:1
Double Pays 1:2
Triple Pays 1:10
JACK POT
× 3 : 210
× 3 : 4298
× 3 : 1158
× 3 : 2214
× 3 : 7137
× 3 :11546
43A 43B 43C 43D
Side Bet
Re-Bet
Bet:30
Win:60
Credits
450

FIG.30A

FIG. 30B

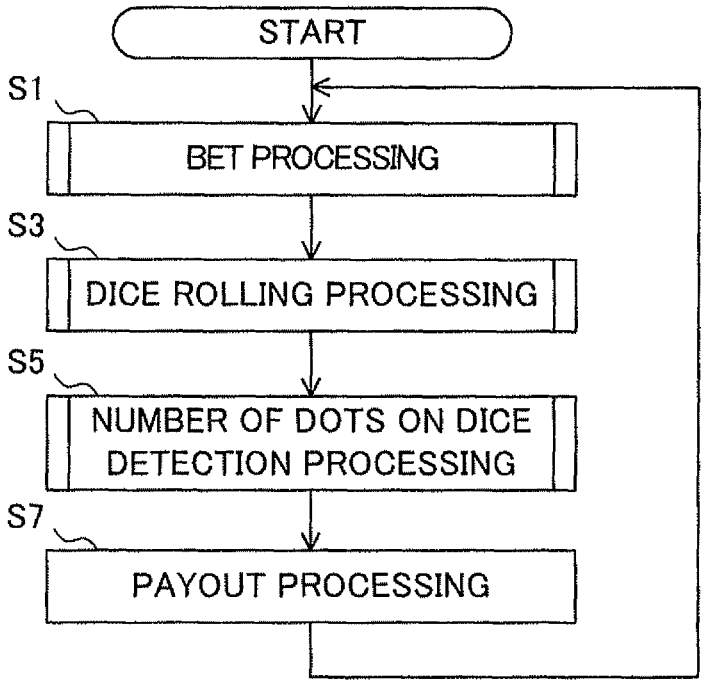

START
S1
BET PROCESSING
S3
DICE ROLLING PROCESSING
S5
NUMBER OF DOTS ON DICE DETECTION PROCESSING
S7
PAYOUT PROCESSING

FIG. 30C

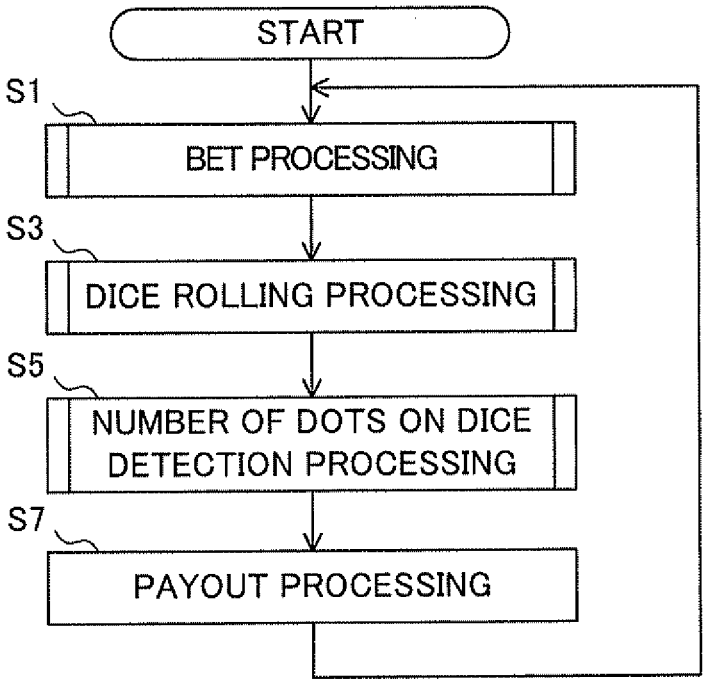
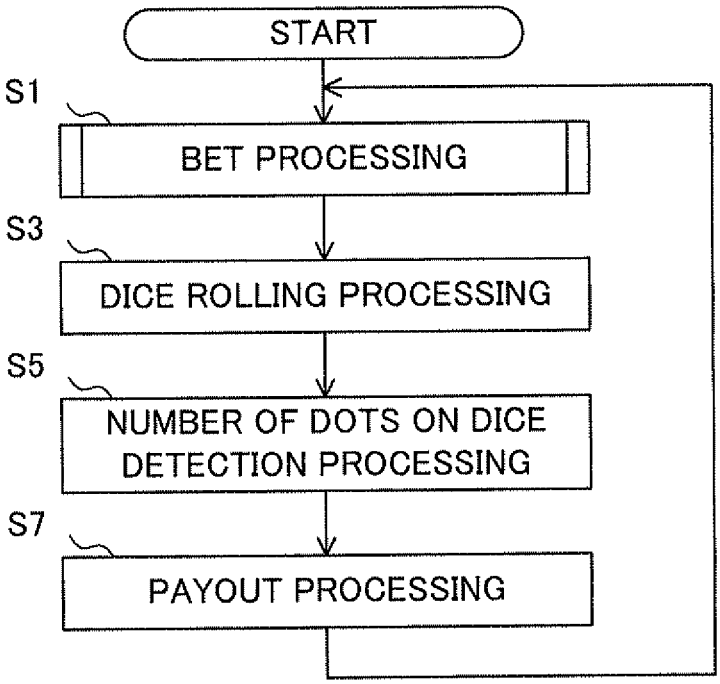

START
S1
BET PROCESSING
S3
DICE ROLLING PROCESSING
S5
NUMBER OF DOTS ON DICE DETECTION PROCESSING
S7
PAYOUT PROCESSING

FIG. 30D


START
S1
BET PROCESSING
S3
DICE ROLLING PROCESSING
S5
NUMBER OF DOTS ON DICE DETECTION PROCESSING
S7
PAYOUT PROCESSING

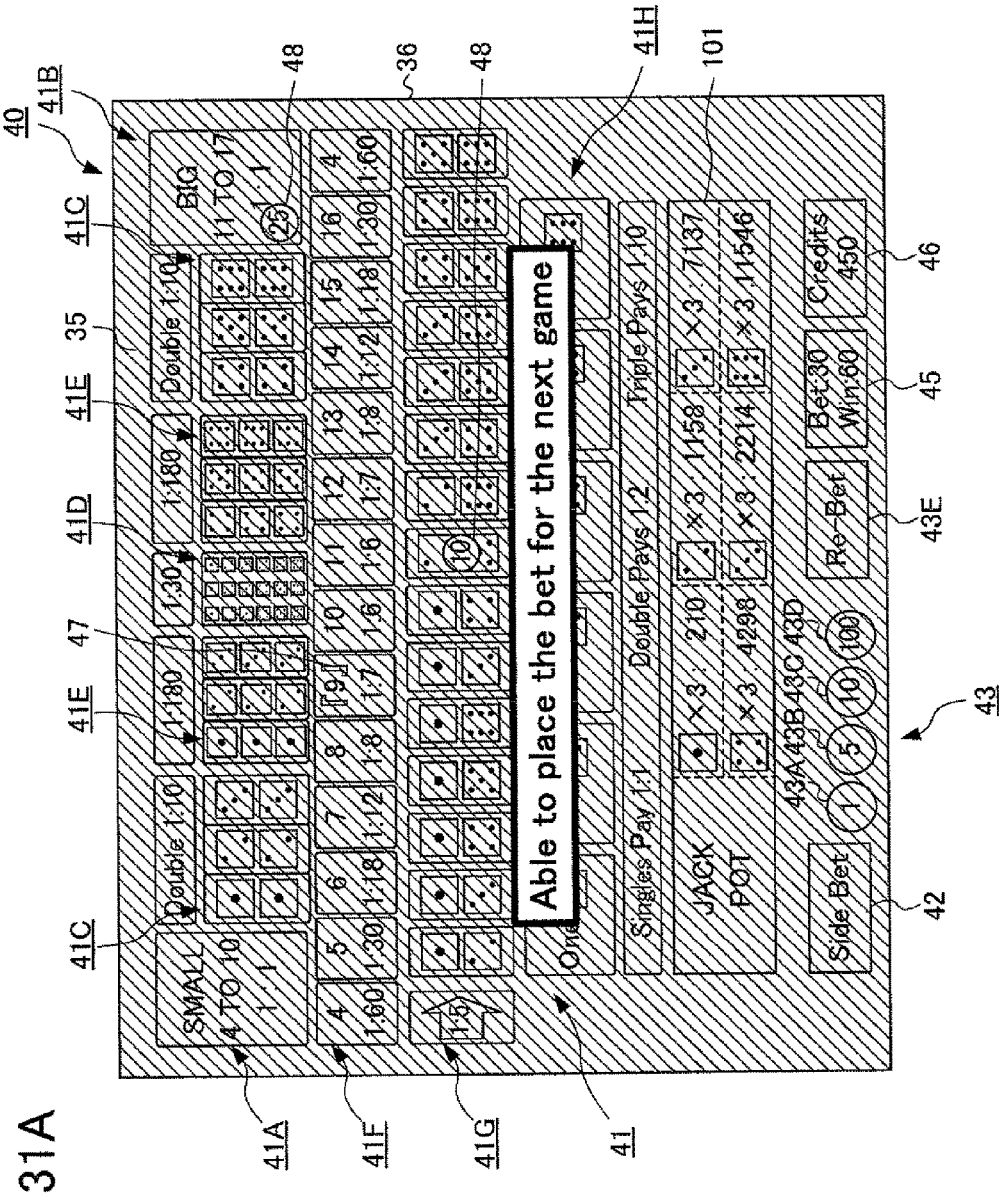

40
41B
41C
35
41E
41D
47
41E
41C
41A
41F
41G
41
41H
48
36
48
101
46
45
43E
43
42
Able to place the bet for the next game
BIG
11 TO 17
Double 1:10
1:180
1:30
1:180
Double 1:10
SMALL
4 TO 10
Triple Pays 1:10
Double Pays 1:2
Single Pay 1:1
JACK POT
Credits
450
Bet 30
Win 60
Re-Bet
Side Bet
43A
43B
43C
43D

FIG.31A

FIG. 31B

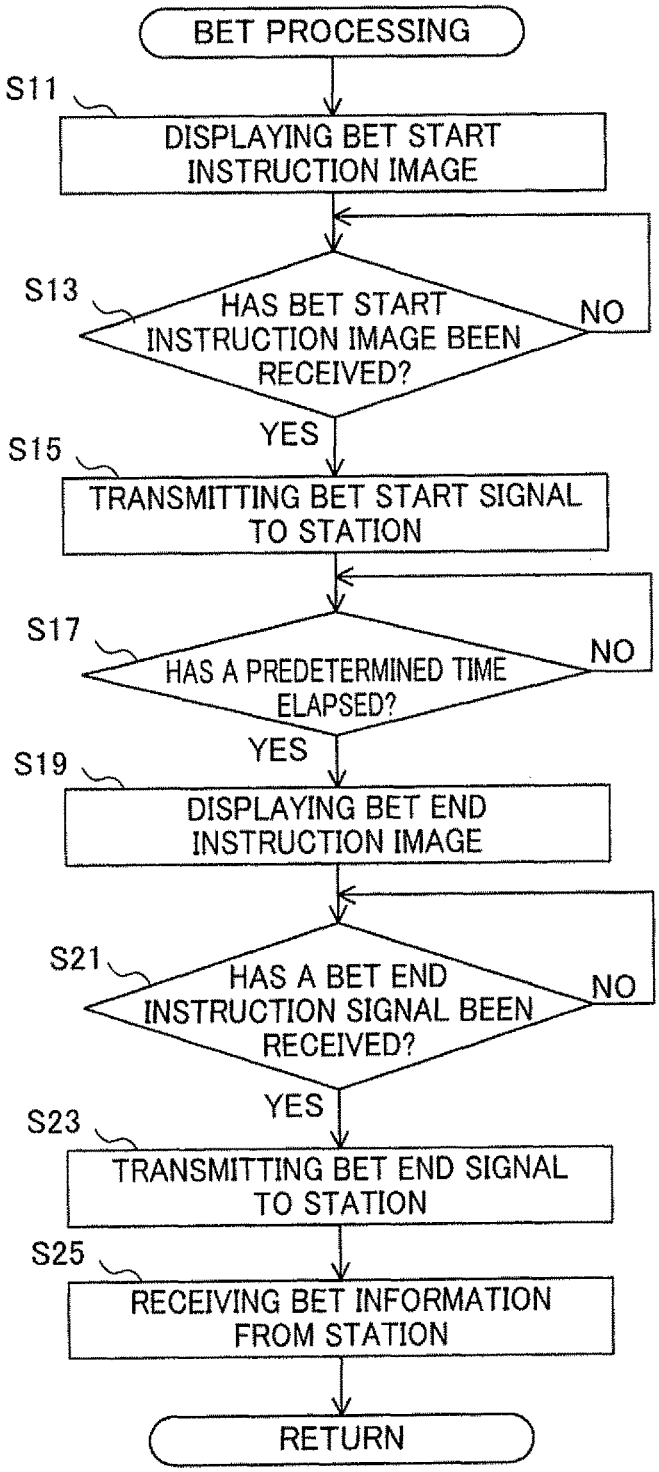

BET PROCESSING
S11
DISPLAYING BET START INSTRUCTION IMAGE
S13
HAS BET START INSTRUCTION IMAGE BEEN RECEIVED?
NO
YES
S15
TRANSMITTING BET START SIGNAL TO STATION
S17
HAS A PREDETERMINED TIME ELAPSED?
NO
YES
S19
DISPLAYING BET END INSTRUCTION IMAGE
S21
HAS A BET END INSTRUCTION SIGNAL BEEN RECEIVED?
NO
YES
S23
TRANSMITTING BET END SIGNAL TO STATION
S25
RECEIVING BET INFORMATION FROM STATION
RETURN

FIG. 31C

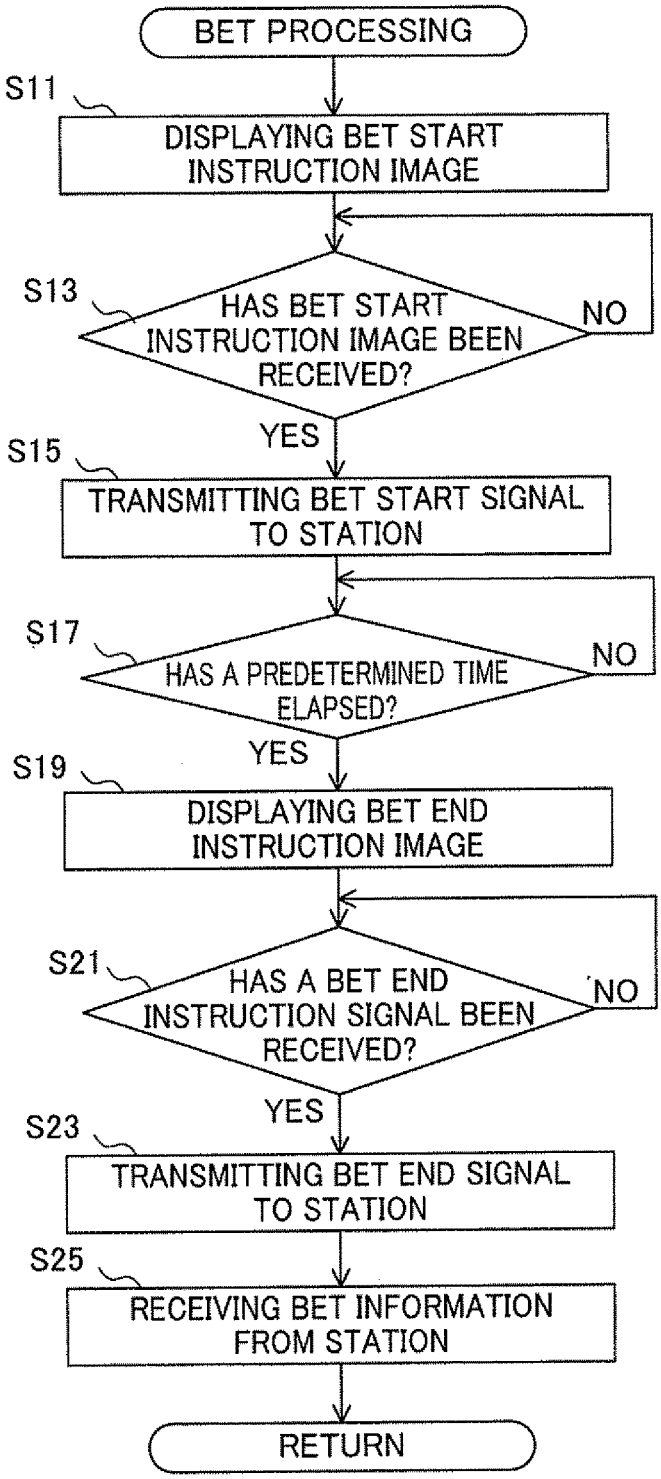

BET PROCESSING
S11
DISPLAYING BET START INSTRUCTION IMAGE
S13
HAS BET START INSTRUCTION IMAGE BEEN RECEIVED?
NO
YES
S15
TRANSMITTING BET START SIGNAL TO STATION
S17
HAS A PREDETERMINED TIME ELAPSED?
NO
YES
S19
DISPLAYING BET END INSTRUCTION IMAGE
S21
HAS A BET END INSTRUCTION SIGNAL BEEN RECEIVED?
NO
YES
S23
TRANSMITTING BET END SIGNAL TO STATION
S25
RECEIVING BET INFORMATION FROM STATION
RETURN

FIG. 31D

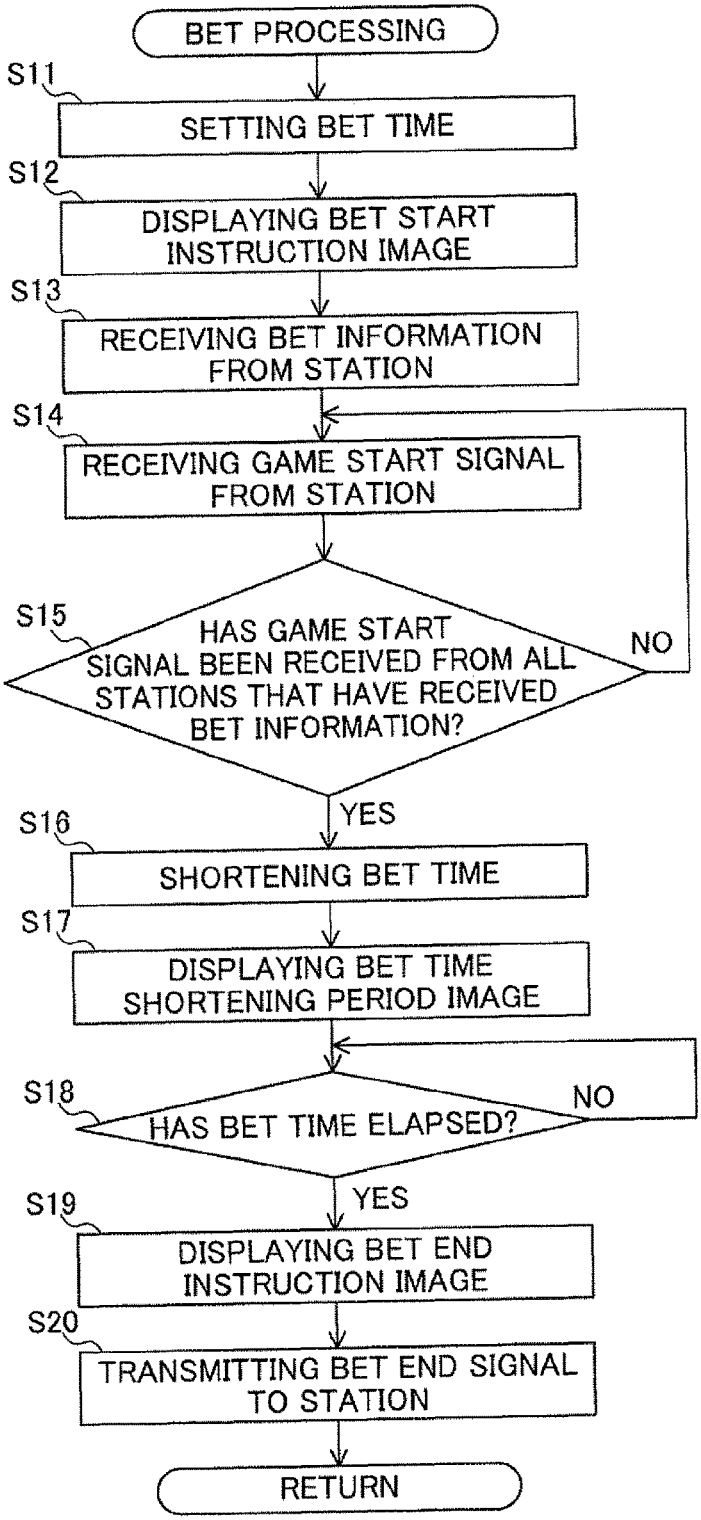

BET PROCESSING
S11
SETTING BET TIME
S12
DISPLAYING BET START INSTRUCTION IMAGE
S13
RECEIVING BET INFORMATION FROM STATION
S14
RECEIVING GAME START SIGNAL FROM STATION
S15
HAS GAME START SIGNAL BEEN RECEIVED FROM ALL STATIONS THAT HAVE RECEIVED BET INFORMATION?
NO
YES
S16
SHORTENING BET TIME
S17
DISPLAYING BET TIME SHORTENING PERIOD IMAGE
S18
HAS BET TIME ELAPSED?
NO
YES
S19
DISPLAYING BET END INSTRUCTION IMAGE
S20
TRANSMITTING BET END SIGNAL TO STATION
RETURN

FIG. 32A

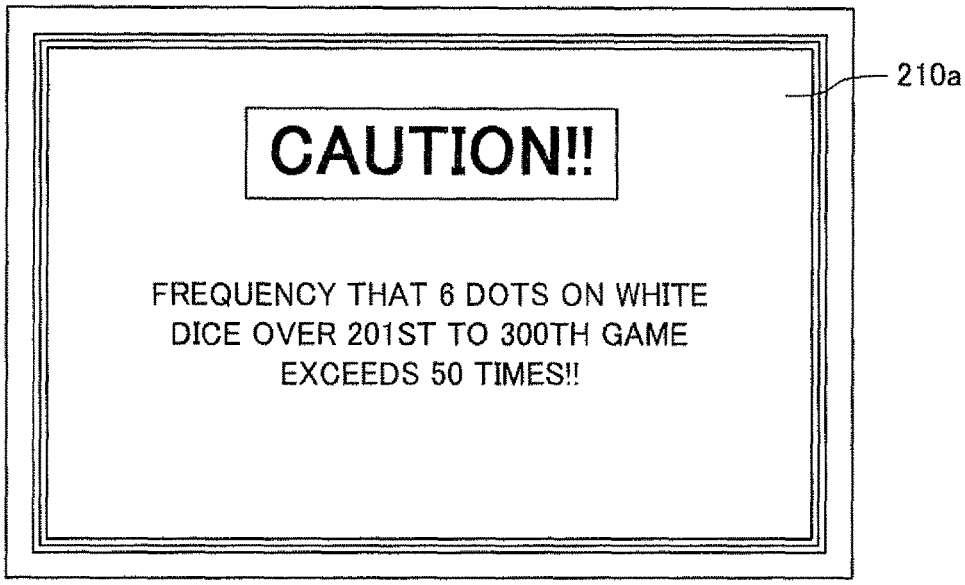


FIG. 33A

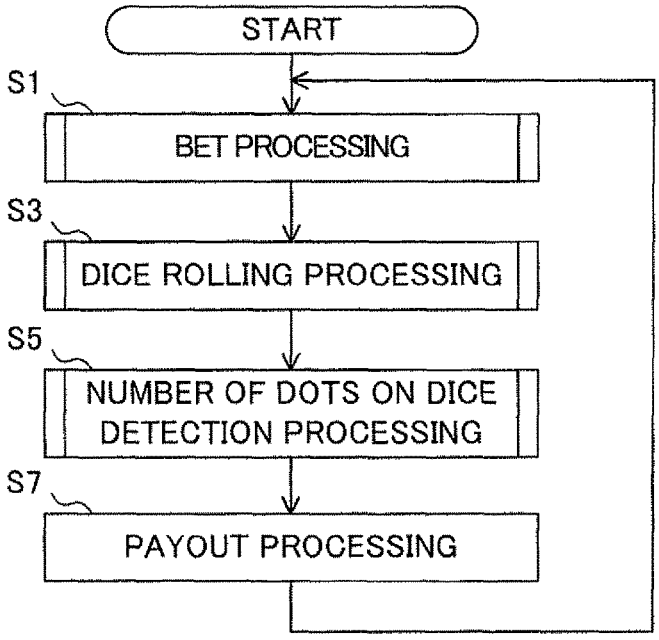


FIG. 32B

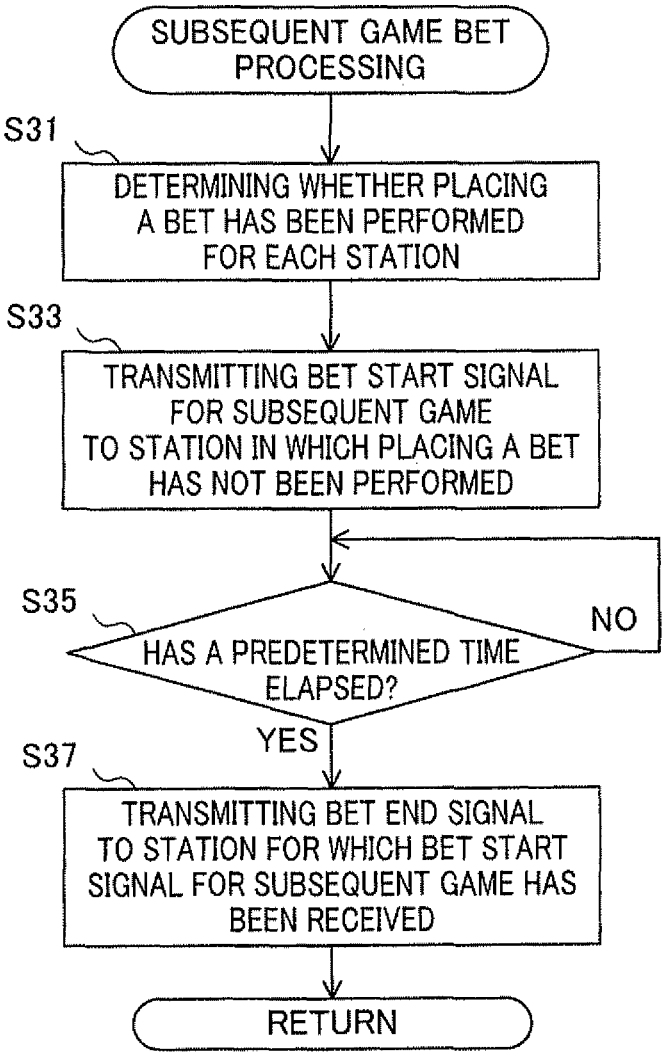

SUBSEQUENT GAME BET PROCESSING
S31
DETERMINING WHETHER PLACING A BET HAS BEEN PERFORMED FOR EACH STATION
S33
TRANSMITTING BET START SIGNAL FOR SUBSEQUENT GAME TO STATION IN WHICH PLACING A BET HAS NOT BEEN PERFORMED
S35
HAS A PREDETERMINED TIME ELAPSED?
NO
YES
S37
TRANSMITTING BET END SIGNAL TO STATION FOR WHICH BET START SIGNAL FOR SUBSEQUENT GAME HAS BEEN RECEIVED
RETURN

FIG. 32C

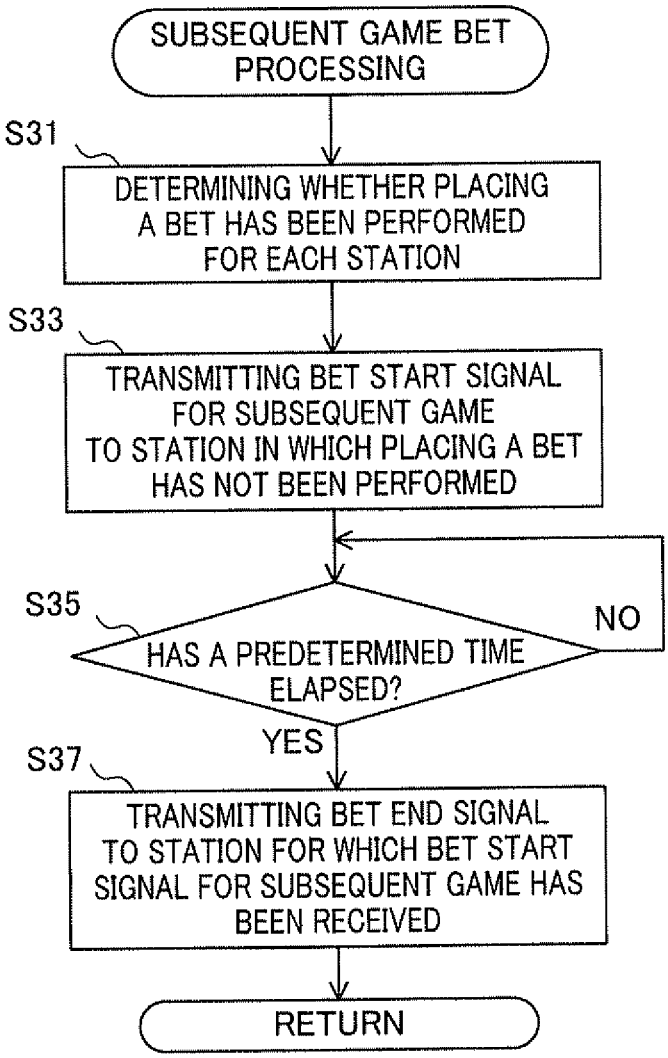

SUBSEQUENT GAME BET PROCESSING
S31
DETERMINING WHETHER PLACING A BET HAS BEEN PERFORMED FOR EACH STATION
S33
TRANSMITTING BET START SIGNAL FOR SUBSEQUENT GAME TO STATION IN WHICH PLACING A BET HAS NOT BEEN PERFORMED
S35
HAS A PREDETERMINED TIME ELAPSED?
NO
YES
S37
TRANSMITTING BET END SIGNAL TO STATION FOR WHICH BET START SIGNAL FOR SUBSEQUENT GAME HAS BEEN RECEIVED
RETURN

FIG. 33B

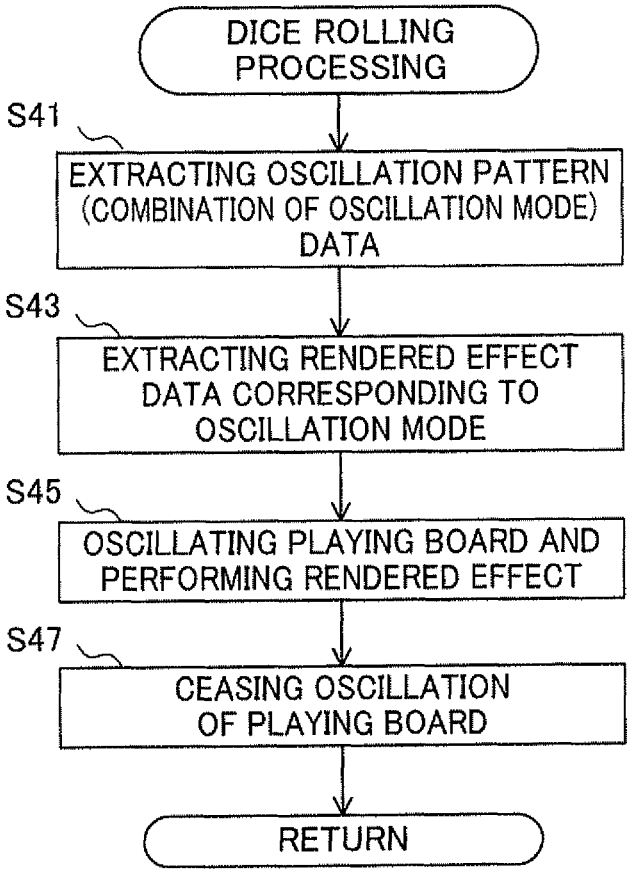

DICE ROLLING PROCESSING
S41
EXTRACTING OSCILLATION PATTERN (COMBINATION OF OSCILLATION MODE) DATA
S43
EXTRACTING RENDERED EFFECT DATA CORRESPONDING TO OSCILLATION MODE
S45
OSCILLATING PLAYING BOARD AND PERFORMING RENDERED EFFECT
S47
CEASING OSCILLATION OF PLAYING BOARD
RETURN

FIG. 33C

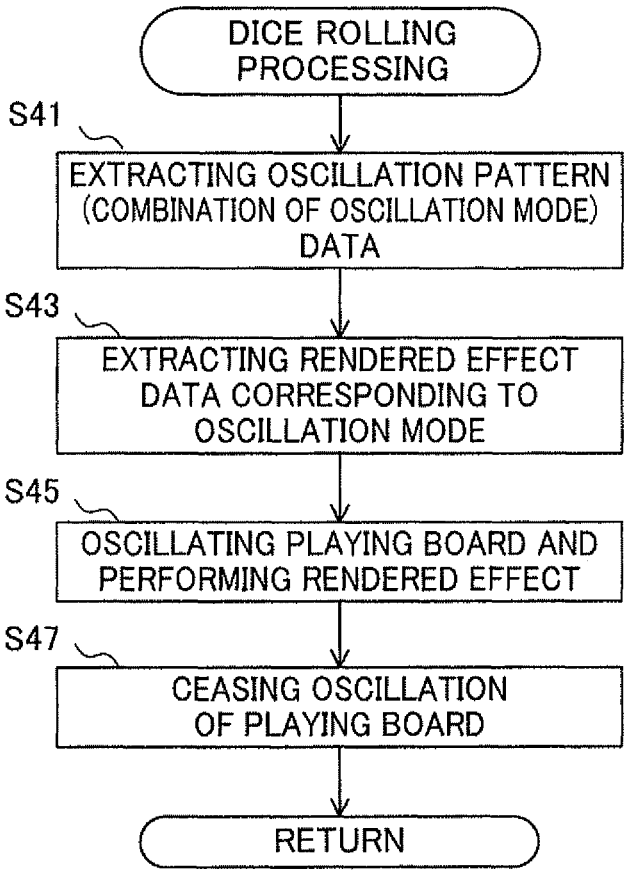

DICE ROLLING PROCESSING
S41
EXTRACTING OSCILLATION PATTERN (COMBINATION OF OSCILLATION MODE) DATA
S43
EXTRACTING RENDERED EFFECT DATA CORRESPONDING TO OSCILLATION MODE
S45
OSCILLATING PLAYING BOARD AND PERFORMING RENDERED EFFECT
S47
CEASING OSCILLATION OF PLAYING BOARD
RETURN

FIG. 34A

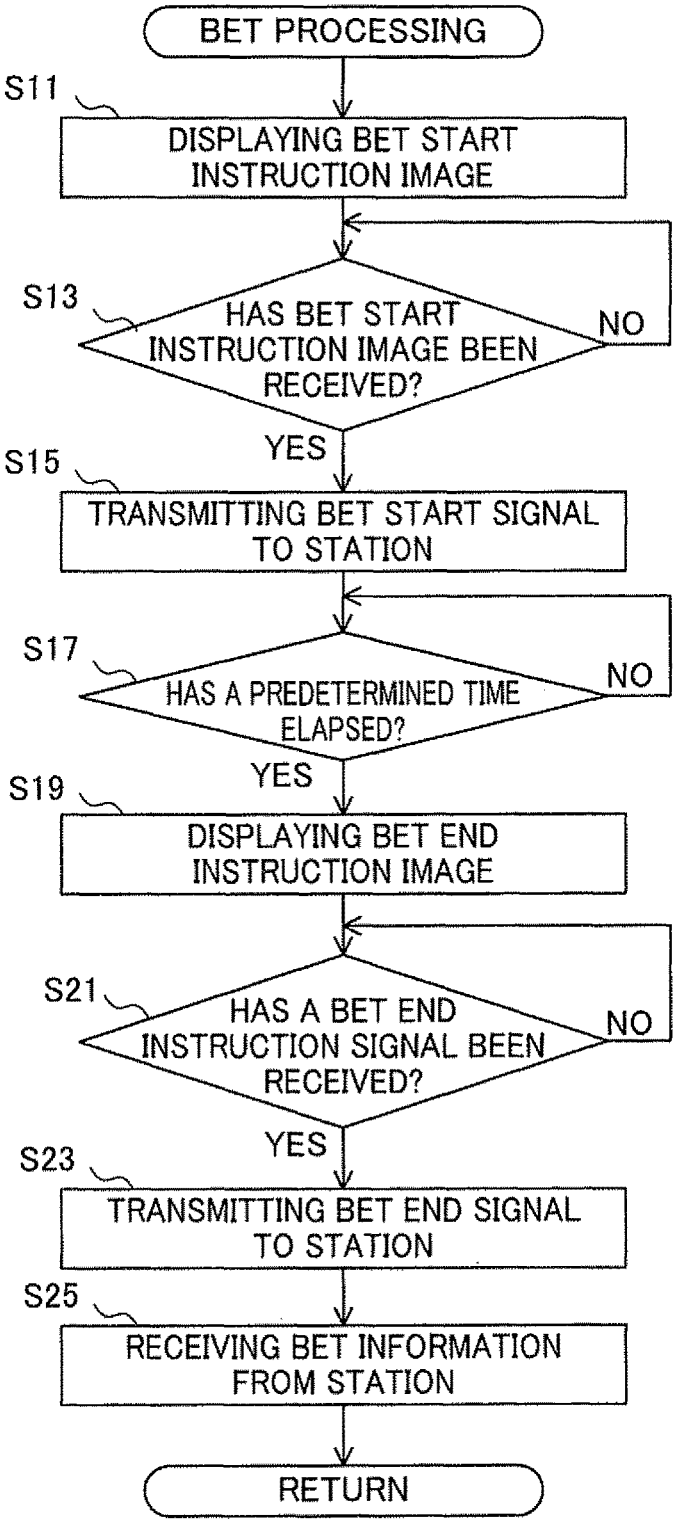

BET PROCESSING
S11
DISPLAYING BET START INSTRUCTION IMAGE
S13
HAS BET START INSTRUCTION IMAGE BEEN RECEIVED?
NO
YES
S15
TRANSMITTING BET START SIGNAL TO STATION
S17
HAS A PREDETERMINED TIME ELAPSED?
NO
YES
S19
DISPLAYING BET END INSTRUCTION IMAGE
S21
HAS A BET END INSTRUCTION SIGNAL BEEN RECEIVED?
NO
YES
S23
TRANSMITTING BET END SIGNAL TO STATION
S25
RECEIVING BET INFORMATION FROM STATION
RETURN

FIG. 34B

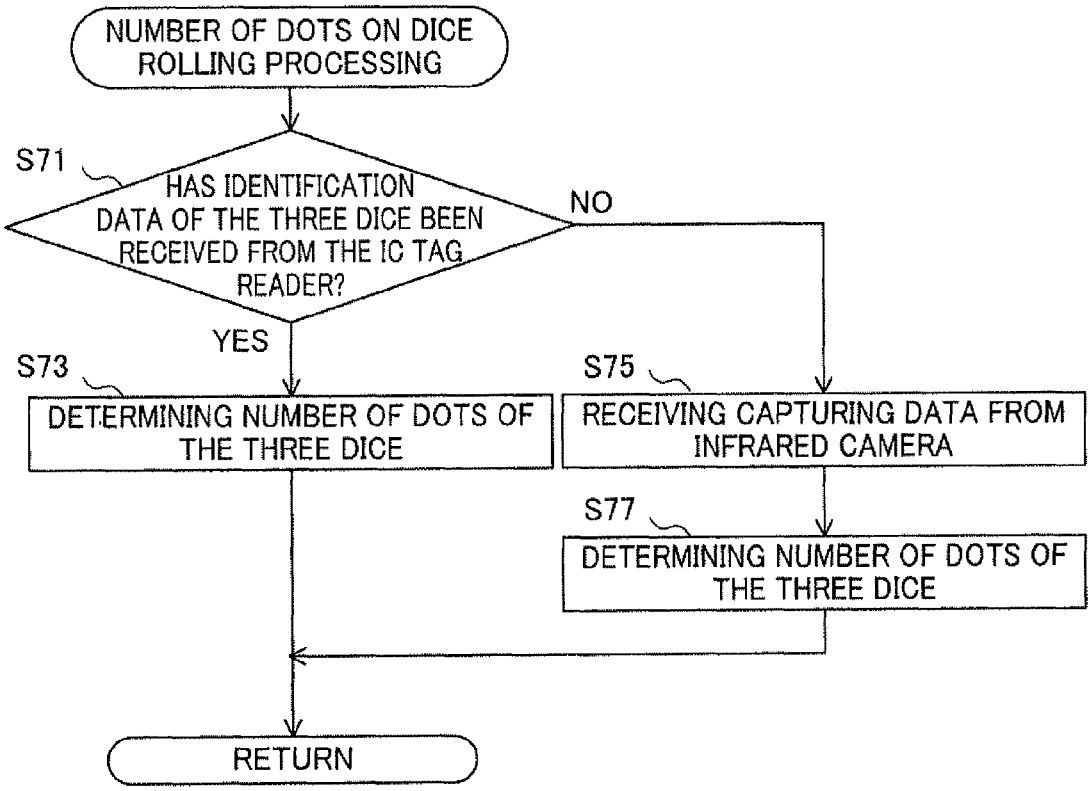

NUMBER OF DOTS ON DICE ROLLING PROCESSING
S71
HAS IDENTIFICATION DATA OF THE THREE DICE BEEN RECEIVED FROM THE IC TAG READER?
NO
YES
S73
DETERMINING NUMBER OF DOTS OF THE THREE DICE
S75
RECEIVING CAPTURING DATA FROM INFRARED CAMERA
S77
DETERMINING NUMBER OF DOTS OF THE THREE DICE
RETURN

FIG. 34C

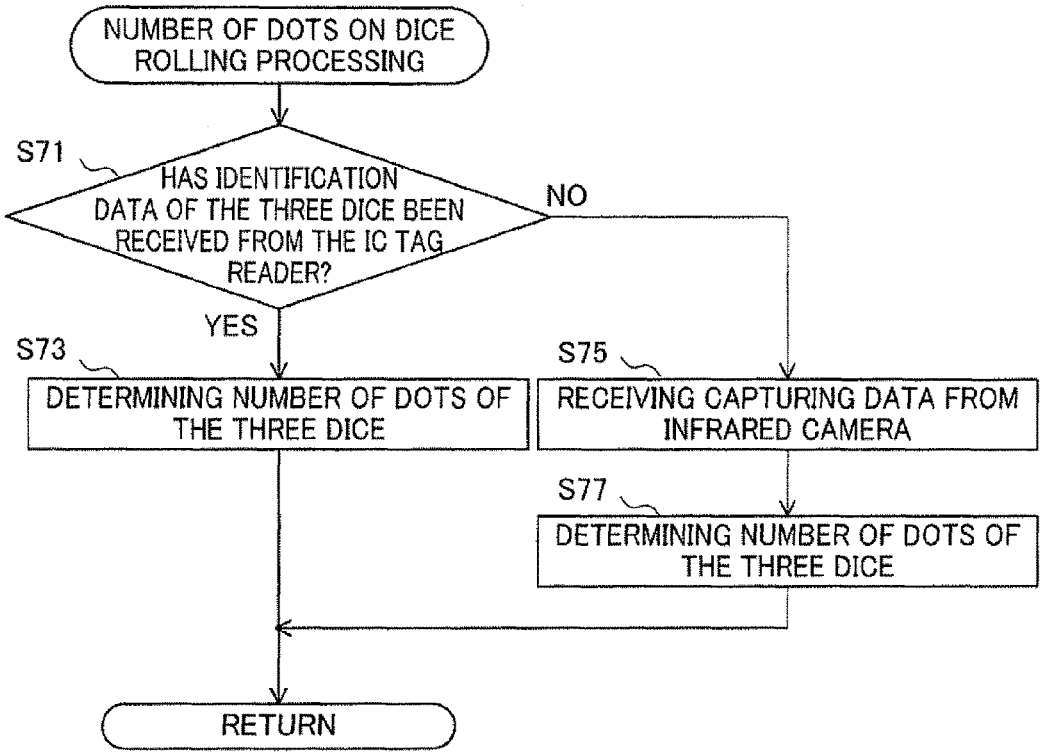

NUMBER OF DOTS ON DICE ROLLING PROCESSING
S71
HAS IDENTIFICATION DATA OF THE THREE DICE BEEN RECEIVED FROM THE IC TAG READER?
NO
YES
S73
DETERMINING NUMBER OF DOTS OF THE THREE DICE
S75
RECEIVING CAPTURING DATA FROM INFRARED CAMERA
S77
DETERMINING NUMBER OF DOTS OF THE THREE DICE
RETURN

FIG. 35A

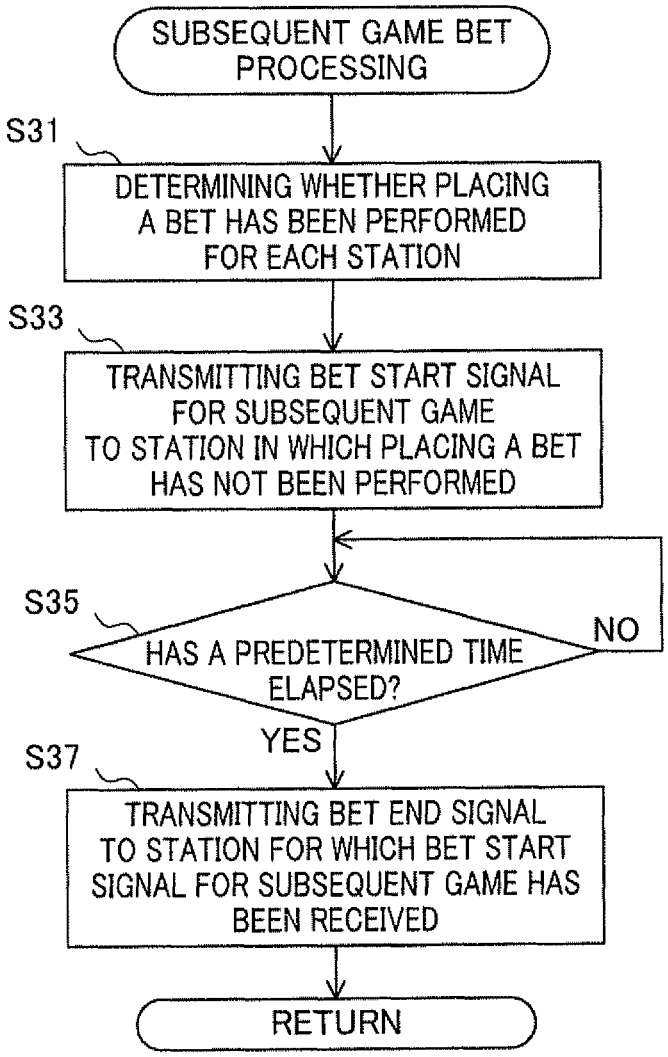

SUBSEQUENT GAME BET PROCESSING
S31
DETERMINING WHETHER PLACING A BET HAS BEEN PERFORMED FOR EACH STATION
S33
TRANSMITTING BET START SIGNAL FOR SUBSEQUENT GAME TO STATION IN WHICH PLACING A BET HAS NOT BEEN PERFORMED
S35
HAS A PREDETERMINED TIME ELAPSED?
NO
YES
S37
TRANSMITTING BET END SIGNAL TO STATION FOR WHICH BET START SIGNAL FOR SUBSEQUENT GAME HAS BEEN RECEIVED
RETURN

FIG. 36A

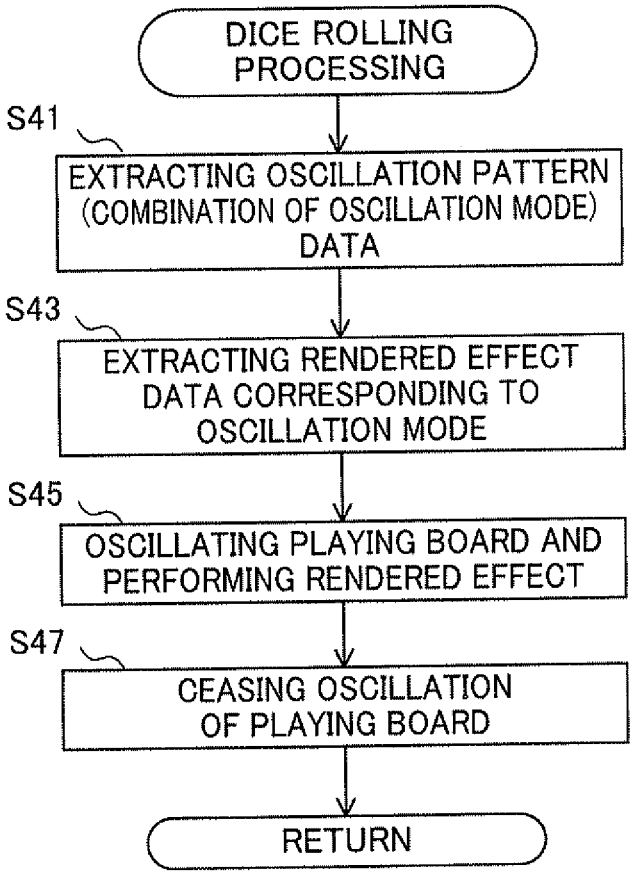

DICE ROLLING PROCESSING
S41
EXTRACTING OSCILLATION PATTERN (COMBINATION OF OSCILLATION MODE) DATA
S43
EXTRACTING RENDERED EFFECT DATA CORRESPONDING TO OSCILLATION MODE
S45
OSCILLATING PLAYING BOARD AND PERFORMING RENDERED EFFECT
S47
CEASING OSCILLATION OF PLAYING BOARD
RETURN

FIG. 37A

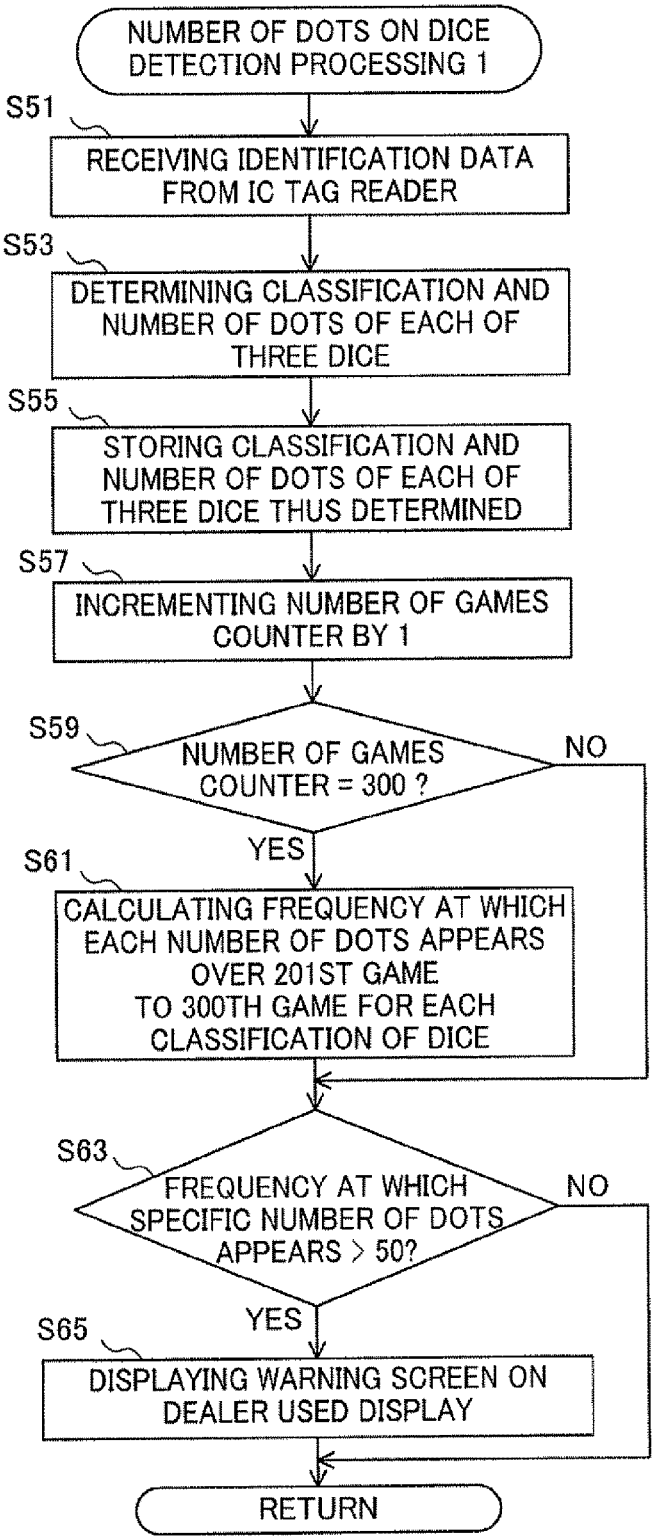
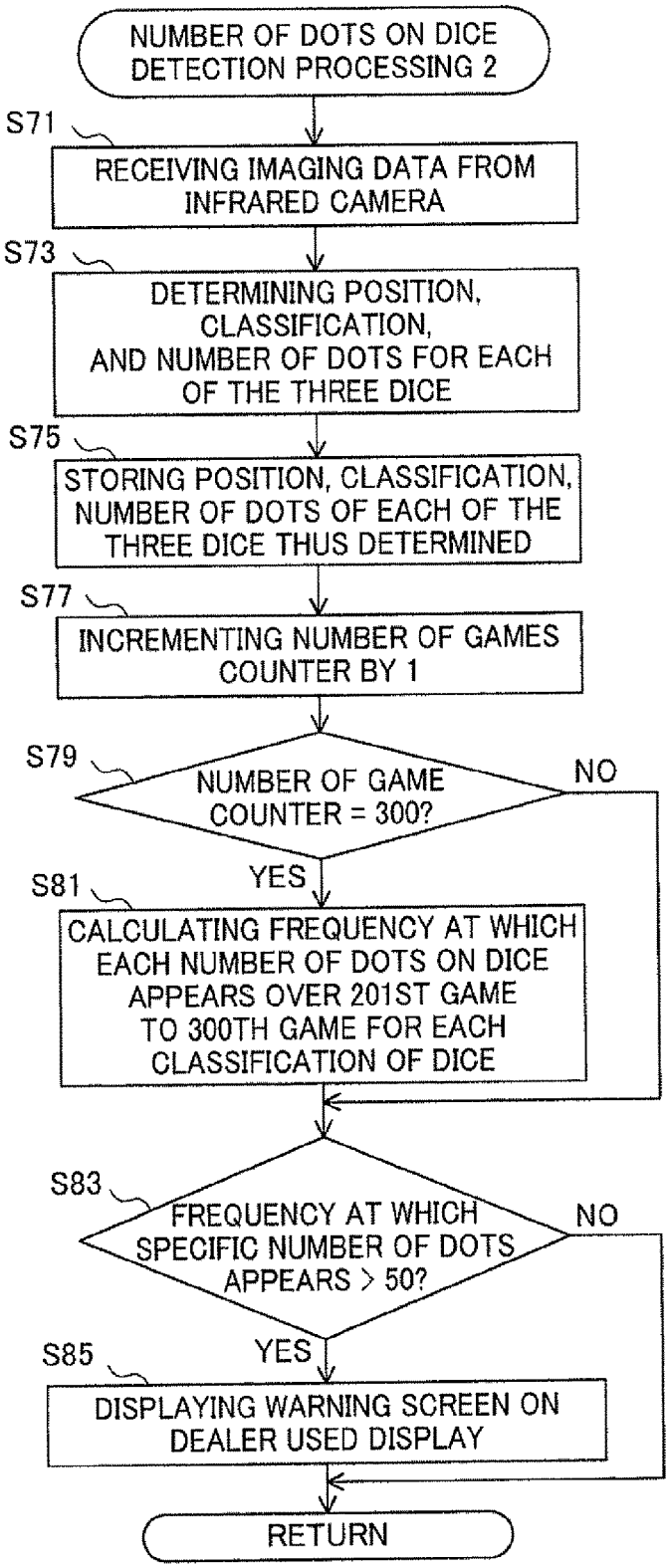

NUMBER OF DOTS ON DICE DETECTION PROCESSING 1
S51
RECEIVING IDENTIFICATION DATA FROM IC TAG READER
S53
DETERMINING CLASSIFICATION AND NUMBER OF DOTS OF EACH OF THREE DICE
S55
STORING CLASSIFICATION AND NUMBER OF DOTS OF EACH OF THREE DICE THUS DETERMINED
S57
INCREMENTING NUMBER OF GAMES COUNTER BY 1
S59
NUMBER OF GAMES COUNTER = 300 ?
NO
YES
S61
CALCULATING FREQUENCY AT WHICH EACH NUMBER OF DOTS APPEARS OVER 201ST GAME TO 300TH GAME FOR EACH CLASSIFICATION OF DICE
S63
FREQUENCY AT WHICH SPECIFIC NUMBER OF DOTS APPEARS > 50?
NO
YES
S65
DISPLAYING WARNING SCREEN ON DEALER USED DISPLAY
RETURN

FIG. 38A


NUMBER OF DOTS ON DICE DETECTION PROCESSING 2
S71
RECEIVING IMAGING DATA FROM INFRARED CAMERA
S73
DETERMINING POSITION, CLASSIFICATION, AND NUMBER OF DOTS FOR EACH OF THE THREE DICE
S75
STORING POSITION, CLASSIFICATION, NUMBER OF DOTS OF EACH OF THE THREE DICE THUS DETERMINED
S77
INCREMENTING NUMBER OF GAMES COUNTER BY 1
S79
NUMBER OF GAME COUNTER = 300?
NO
YES
S81
CALCULATING FREQUENCY AT WHICH EACH NUMBER OF DOTS ON DICE APPEARS OVER 201ST GAME TO 300TH GAME FOR EACH CLASSIFICATION OF DICE
S83
FREQUENCY AT WHICH SPECIFIC NUMBER OF DOTS APPEARS > 50?
NO
YES
S85
DISPLAYING WARNING SCREEN ON DEALER USED DISPLAY
RETURN

GAMING MACHINE WITH DICE SHAKING UNIT PERFORMING DICE SHAKING MOTIONS WITH VARYING AMPLITUDES

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue; a claim printed with strikethrough indicates that the claim was canceled, disclaimed, or held invalid by a prior post-patent action or proceeding.

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a reissue application of U.S. patent application Ser. No. 13/062,717, filed Mar. 8, 2011, now U.S. Pat. No. 8,926,438, which is a National Stage application of PCT/JP2009/065643 filed on Sep. 8, 2009, which claims the benefit of U.S. Provisional Application Ser. Nos. U.S. 61/114,799 filed on Nov. 14, 2008, U.S. 61/096,348 filed on Sep. 12, 2008, U.S. 61/096,344 filed on Sep. 12, 2008, U.S. 61/096,146 filed on Sep. 11, 2008, U.S. 61/096,162 filed on Sep. 11, 2008, U.S. 61/095,828 filed on Sep. 10, 2008, U.S. 61/095,821 filed on Sep. 10, 2008, and U.S. 61/095,846 filed on Sep. 10, 2008, the contents of which are all hereby incorporated by reference herein in their entirety.

TECHNICAL FIELD

The present invention relates to a gaming machine that requires a smaller installation area in a case where a plurality of terminals is installed, and provides enhanced visibility.

BACKGROUND ART

Conventionally, various table games are known. Among these table games, there are games hosted by a dealer and hosted by a computer in place of the dealer. In a case where the computer hosts a game, the game can be executed either in only one terminal or simultaneously in a plurality of terminals via a network.

In addition, in a case where such games are provided in a predetermined building, a large number of terminal devices, on which the games can be executed, are often installed in a predetermined region in the building. Furthermore, each of the terminal devices can provide a plurality of games to a player, for example, as disclosed in Patent Document 1.

In such a case, regarding the terminals providing a game, it is required to install as many as possible within a predetermined area in a gaming hall, so that a large number of players can participate in the game.

Patent Document 1: U.S. Patent Application Publication No. 2007/0026947

DISCLOSURE OF THE INVENTION

Problems to be Solved by the Invention

However, if the terminals are simply reduced in size, operating devices, a display for displaying the game, and the like also must be smaller. In such a case, there was a problem in that the terminals cannot give users a superior operational sensation and the display becomes difficult to recognize.

In addition, the terminals are generally required to be movable for changing an arrangement thereof in the gaming hall. However, if a handle and the like used for moving the terminal is always visible to players, appearance of the terminal is deteriorated.

Given this, the present invention aims at providing a gaming machine that allows a larger number of terminals to be installed in a limited area while improving visibility.

Means for Solving the Problems

In a first aspect of the present invention, a gaming machine includes: a cabinet that houses devices for executing a game, and has an opening on an upper side; a top door disposed to cover the opening; a control unit that executes the game; and an operating unit that is disposed along a peripheral edge on a front side of the top door, and can be operated by a player, in which the cabinet includes: a back face, which is a face on a back side that is an opposite side to a side on which the operating unit is disposed, a right lateral face, which is a face on a right side when the back face is viewed from a direction of the operating unit, a left lateral face, which is a face opposed to the right lateral face of the cabinet, a right end face shaped in a plane parallel to a direction of gravitational force so as to connect two points that are on the back face and the right lateral face respectively, each of which is separated predetermined distances from a point of intersection at which an extended line of the back face and an extended line of the right lateral face intersect each other, and a left end face shaped in a plane parallel to a direction of gravitational force so as to connect two points that are on the back face and the left lateral face respectively, each of which is separated predetermined distances from a point of intersection at which an extended line of the back face and an extended line of the left lateral face intersect each other, and in which the right end face and the left end face are positioned to be plane-symmetrical to each other across a plane vertically dividing the cabinet into two equal parts.

According to the first aspect of the present invention, the gaming machine includes a cabinet, a top door disposed to cover an opening in the cabinet, and a control unit. When the operating unit is viewed from a front, between a back face that is on a back side of the cabinet and a right lateral face that is on a right side of the cabinet, is located a right end face, which is shaped in a plane parallel to a direction of gravitational force so as to connect two points that are on the back face and the right lateral face respectively, each of which is separated predetermined distances from a point of intersection at which an extended line of the back face and an extended line of the right lateral face intersect each other. Similarly, between the back face and the left lateral face, is located a left end face. In addition, the right end face and the left end face are positioned to be plane-symmetrical to each other across a plane vertically dividing the cabinet into two equal parts.

In such a configuration, in a case where a plurality of the gaming machines is installed in a substantially circular manner, an installation diameter can be reduced by contacting the right end face and the left end face of the gaming machine with the left end face and the right end face of the adjacent gaming machines, respectively, thereby allowing more gaming machines to be installed within a limited area.

According to a second aspect of the present invention, in the gaming machine as described in the first aspect, the cabinet includes a handle portion formed on at least one of the right end face and the left end face.

According to the second aspect of the present invention, in addition to the gaming machine as described in the first

aspect, the cabinet includes a handle portion formed on at least one of the right end face and the left end face. The abovementioned configuration is useful for moving the gaming machine and can improve visibility since the handle portion is hidden when a plurality of the gaming machines is installed in a substantially circular manner.

According to a third aspect of the present invention, a gaming machine is provided which includes: a display that displays an image relating to a game; a playing unit on which a plurality of dice rolls and comes to rest; a sensor that receives identification data of a number of dots on the dice by performing communication with the dice; memory that stores a classification and number of dots of the dice for each game; and a controller that executes processing of: (a) driving the sensor and receiving from the sensor identification data converted by the sensor; (b) determining a classification and number of dots of the dice based on the identification data thus received; (c) storing the classification and number of dots on the dice thus determined in the memory for each game; (d) calculating a frequency at which each number of dots appears over a predetermined number of games for each classification of the dice; and (e) displaying, in a case in which a frequency at which a specific number of dots on a specific die appears at least a predetermined number of times, as a result of calculation in the processing (d), an indication thereof on the display.

According to the third aspect of the present invention, since the controller calculates a frequency at which each number of dots appears over a predetermined number of games for each classification of the dice and displays, in a case in which the frequency at which a specific number of dots on a specific die appears at least a predetermined number of time, an indication thereof on the display, in a case in which a specific number of dots of a specific classification of a die appears frequently and the like, it is possible to detect damage to a die or fraudulence related to a die.

According to a fourth aspect of the present invention, in a gaming machine according to the third aspect, the controller executes processing for interrupting a game, in a case in which a frequency at which a specific number of dots on a specific die appears at least a predetermined number of times, as a result of the calculation in the processing (d).

According to the fourth aspect of the present invention, since the controller calculates a frequency at which each of the numbers of dots appears over a predetermined number of games for each classification of the dice, and interrupts a game in a case in which a frequency at which a specific number of dots on a specific die appears at least a predetermined number of times, whereby it is possible to detect damage to a die or fraudulence related to a die in a case in which a specific number of dots of a specific classification of a die appears frequently and the like.

According to a fifth aspect of the present invention, a gaming machine is provided which includes: a display that displays an image relating to a game; a playing unit on which a plurality of dice rolls and comes to rest; a sensor that identifies and converts a classification and number of dots of the dice to imaging data memory that stores a classification and number of dots of the dice for each game; and a controller that executes processing of: (a) driving the sensor and receiving from the sensor imaging data converted by the sensor; (b) determining a classification and number of dots of the dice based on the imaging data thus received; (c) storing the classification and number of dots of the dice thus determined in the memory for each game; (d) calculating a frequency at which each number of dots appears over a predetermined number of games for each classification of the dice; and (e) displaying, in a case in which a frequency at which a specific number of dots on a specific die appears at least a predetermined number of times, as a result of calculation in the processing (d), an indication thereof on the display.

According to the fifth aspect of the present invention, since the controller calculates a frequency at which each of the numbers of dots appears over a predetermined number of games for each classification of the dice and, in a case in which a frequency at which a specific number of dots on a specific die appears at least a predetermined number of times, displays an indication thereof on the display, whereby it is possible to detect damage to a die and fraudulence related to a die in a case in which a specific number of dots of a specific classification of a die appears frequently and the like.

According to a sixth aspect of the present invention, in a gaming machine according to the fifth aspect, the controller executes processing for interrupting a game, in a case in which a frequency at which a specific number of dots on a specific die appears at least a predetermined number, as a result of calculation in the processing (d).

According to the sixth aspect of the present invention, since the controller calculates a frequency at which each number of dots appears over a predetermined number of games for each classification of the dice and, in a case in which a frequency at which a specific number of dots on a specific die appears at least a predetermined number of times, interrupts a game, it is possible to detect damage to a die or fraudulence related to a die in a case in which a specific number of dots of a specific classification of a die appears frequently and the like.

According to a seventh aspect of the present invention, a gaming machine is provided which includes: a playing unit on which a plurality of dice rolls and comes to rest; an oscillation device that causes the playing unit to oscillate; memory that stores a plurality of types of rendered effect data corresponding to a plurality of types of oscillation modes in which the playing unit is oscillated by the oscillation device; and a controller that executes processing of: (a) starting a unit game; (b) determining the oscillation mode when the unit game starts; (c) extracting the rendered effect data corresponding to the oscillation mode thus determined from the memory; and (d) performing rendered effects based on the rendered effect data thus extracted.

According to the seventh aspect of the present invention, since the rendered effects corresponding to the oscillation mode of the playing unit in the unit game are performed, a gaming machine having game play that does not become monotonous and is more amusing can be provided.

According to a eighth aspect of the present invention, a gaming machine according to the seventh aspect further includes a speaker that outputs sound relating to game play, in which the processing (d) causes sound to be output from the speaker based on the rendered effect data thus extracted.

According to the eighth aspect of the present invention, since the rendered effects corresponding to the oscillation mode of the playing unit in the unit game are performed by way of sound, a gaming machine having a game that does not become monotonous and is more amusing can be provided.

According to a ninth aspect of the present invention, a gaming machine according to the seventh aspect further includes a light emitting body that emits light relating to

game play, in which the processing (d) causes light to be emitted from the light emitting body based on the rendered effect data thus extracted.

According to the ninth aspect of the present invention, since the rendered effects corresponding to the oscillation mode of the playing unit in the unit game are performed by way of light, a gaming machine having a game that does not become monotonous and is more amusing can be provided.

According to a tenth aspect of the present invention, a gaming machine is provided which includes: a plurality of stations; a plurality of input devices that is respectively provided to the plurality of stations, and through which a bet can be performed on a number of dots on dice; and a controller that executes the following processing of: (a) starting a unit game, and accepting a bet during a first predetermined time from each of the plurality of input devices; (b) when the first predetermined time elapses, accepting a bet for a subsequent game during a second predetermined time from each of the plurality of input devices; and (c) when the second predetermined time elapses, starting a subsequent game.

According to the tenth aspect of the present invention, the controller starts a unit game and accepts a bet during a first predetermined time from each of the plurality of input devices, when the first predetermined time elapses, and accepts a bet for a subsequent game from each of the plurality of input devices during a second predetermined time. Thus, a gaming machine can be provided through which betting can be performed for a subsequent game even if the unit game is in the middle of execution.

According to a eleventh aspect of the present invention, a gaming machine is provided which includes: a plurality of stations; a plurality of input devices that is respectively provided to the plurality of stations, and through which bettering can be performed on a number of dots on dice; and a controller that executes the following processing of: (a) starting a unit game, and accepting a bet during a first predetermined time from each of the plurality of input devices; (b) when the first predetermined time elapses, determining whether a bet has been made during the first predetermined time for each of the plurality of stations; (c) accepting a bet for a subsequent game during a second predetermined time from the input device provided to a station at which a bet has been determined not to have been made in the processing (b); and (d) when the second predetermined time elapses, starting a subsequent game.

According to the eleventh aspect of the present invention, the controller accepts a bet for a subsequent game during a second predetermined time from the input device provided to a station at which a bet has been determined not to have been made in the processing (b). Thus, a gaming machine can be provided in which a player who has not participated in the unit game can place a bet on a subsequent game even if the unit game is in the middle of execution.

According to a twelfth aspect of the present invention, a gaming machine includes: a plurality of stations; a plurality of input devices that are provided to the plurality of stations and through which a bet can be placed on a bet target; and a controller that executes the following processing of: (a) setting a bet time for accepting a bet by the plurality of input devices; (b) accepting a bet from each of the plurality of input devices; (c) accepting a game start signal from an input device that has accepted a bet among the plurality of input devices; (d) shortening the bet time, in a case of accepting the game start signal; and (e) starting a game when the bet time has elapsed.

According to the twelfth aspect of the present invention, the controller sets a bet time for accepting a bet by the plurality of input devices; accepts a bet from each of the plurality of input devices; accepts a game start signal from an input device that has accepted a bet among the plurality of input devices; shortens the bet time, in a case of accepting the game start signal; and starts a game when the bet time has elapsed.

Thus, in the gaming machine provided with a plurality of stations that executes a mass game, the bet time set by the controller can be shortened by the game start signal accepted from the input devices of the stations.

Accordingly, a gaming machine that can shorten a bet time in a mass game can be provided.

Thus, for example, by providing in the input device a start button that is operated by a player and may transmit the game start signal, for example, if there is a single player, this player can play the game at the his/her own pace by operating the start button without waiting for the bet time set by the controller.

According to a thirteenth aspect of the present invention, a gaming machine includes: a plurality of stations; a plurality of input devices that are provided to the plurality of stations and through which a bet can be placed on a bet target; and a controller that executes the following processing of: (a) setting a bet time for accepting a bet by the plurality of input devices; (b) accepting a bet from each of the plurality of input devices; (c) accepting a game start signal from all of the input devices that have accepted a bet among the plurality of input devices; (d) shortening the bet time, in a case of accepting the game start signal from all of the input devices that have accepted the bet; and (e) starting a game when the bet time has elapsed.

According to the thirteenth aspect of the present invention, in the processing (c) and (b) in the first aspect, the controller accepts a game start signal from all of the input devices that have accepted a bet among a plurality of input devices and, in a case in which the game start signal has been accepted from all of the input devices that have accepted the bet, shortens the bet time.

Thus, for example, in a case in which a plurality of players have been playing, since the bet time is shortened when a game start signal has been transmitted from all of the players, the bet time can be shortened while waiting for bets from all of the players.

Therefore, a gaming machine can be provided that can shorten a bet time while waiting bets from all of the players in a mass game.

According to a fourteenth aspect of the present invention, a gaming system includes: a dice movable unit having a plurality of dice and a shaking device that causes the plurality of dice to shake; a game terminal having an operation device that a player can operate; and a controller that executes processing of: (a) receiving a bet end signal, which indicates that betting has ended, from the game terminal; (b) transmitting a permission signal, which permits an operation by the operation device, to the game terminal; (c) receiving an operation signal that indicates that the operation device has been operated; and (d) transmitting a shaking motion start signal, which causes a shaking motion by the shaking device to start, to the dice movable unit, in which the dice movable unit (d1) performs the shaking motion by the shaking device in response to having received the shaking motion start signal from the controller.

According to the fourteenth aspect of the present invention, when a controller receives from a game terminal a bet end signal indicating that a bet operation has ended, the

controller transmits a permission signal that permits an operation by an operation device. In the game terminal, when the operation device is operated and an operation signal is transmitted, in response to having received the operation signal, the controller transmits a shaking motion start signal that causes a dice movable unit to be shaken, and a shaking device of the dice movable unit performs a shaking motion. Thus, by providing an opportunity for a player can shake the dice, it allows the player to participate in the game actively, and can provide a live aspect.

According to a fifteenth aspect of the present invention, a gaming system includes: a dice movable unit having a plurality of dice and a shaking device that causes the plurality of dice to roll; a game terminal having an operation device that a player can operate; and a controller that executes processing of: (a) receiving a bet end signal, which indicates that betting has ended, from the game terminal; (b) transmitting a first shaking motion start signal, which causes a first shaking motion by the shaking device to start, to the dice movable unit; (c) transmitting a permission signal, which permits a operation by the operation device, to a predetermined game terminal; (d) receiving an operation signal, which indicates that the operation device has been operated, from the predetermined game terminal; and (e) transmitting a second shaking motion start signal, which causes a second shaking motion by the shaking device to start, to the dice movable unit; in which the dice movable unit (b1) starts the first shaking motion in response having received the first shaking motion start signal from the controller; and (e1) performs the second shaking motion, which has an amplitude larger than that of the first shaking motion, in response to having received the second shaking motion start signal from the controller.

According to the fifteenth aspect, when the controller receives from the game terminal a bet end signal indicating that a bet operation has ended, the controller transmits a first shaking motion start signal for causing the dice movable unit to be shaken, and the dice movable unit that has received this causes the shaking device to perform the first shaking motion. Then, the controller transmits a permission signal, which permits an operation by the operation device, to a predetermined game terminal. The operation device is operated at the game terminal and the operation signal is transmitted. The controller transmits a second shaking motion start signal that causes the dice movable unit to perform the second shaking motion in response to having received the operation signal, and a shaking device of the dice movable unit performs the second shaking motion. At this time, the amplitude of the second shaking motion is larger than that of the first shaking motion. Thus, by providing an opportunity for a player to be able to shake the dice, it allows the player to participate in the game actively, and can provide a live aspect.

According to a sixteenth aspect of the present invention, a gaming system includes: a dice movable unit having a plurality of dice and a shaking device causes the plurality of dice to roll; a game terminal having an operation device that a player can operate; memory that stores bet data that indicates an amount of a bet that the game terminal has accepted; and a controller that executes processing of: (a) receiving a bet end signal, which indicates that a bet has been ended, along with bet data that the game terminal has accepted, from the game terminal; (b) storing the bet data thus received in the memory; (c) transmitting a first shaking motion start signal that causes a first shaking motion by the shaking device to start, to the dice movable unit; (d) comparing the bet data thus stored in the memory by the processing (b) and transmitting a permission signal, which permits an operation by the operation device, to the game terminal that has transmitted a value of largest amount; (e) receiving an operation signal, which indicates that the operation device has been operated, from a game terminal that has transmitted the permission signal; and (f) transmitting a second shaking motion start signal, which causes a second shaking motion by the shaking device to start, to the dice movable unit, in which the dice movable unit; (b1) starts a first shaking motion in response to having received the first shaking motion start signal from the controller; and (f1) performs the second shaking motion, which has an amplitude larger than that of the first shaking motion, in response to having received the second shaking motion start signal from the controller.

According to the sixteenth aspect of the present invention, when the controller receives from the game terminal a bet end signal, which indicates that a bet operation has been ended, along with bet data, which indicates an amount thus bet, the controller stores the bet data in the memory. Then, the controller transmits a first shaking motion start signal that causes the dice movable unit to perform a first shaking motion, and the dice movable unit that has received this causes the shaking device to start the first shaking motion. Next, the controller compares the bet data thus stored in the memory and transmits a permission signal by an operation device to the game terminal that has transmitted bet data indicating a value of largest amount. In the game terminal to which the permission signal has been transmitted, the operation device is operated, and in response to having received the operation signal, the controller transmits a second shaking motion start signal that causes the dice movable unit to perform a second shaking motion, and the shaking device of the dice movable unit performs a second shaking motion. At this time, the amplitude of the second shaking motion is larger than that of the first shaking motion.

Thus, by providing an opportunity for a player to be able to shake the dice, it allows the player to participate in the game actively, and can provide a live aspect.

According to a seventeenth aspect of the present invention, a gaming system includes: a dice movable unit having a plurality of dice and a shaking device that causes the plurality of dice to roll; a game terminal having a display device that performs display relating to a game and an operation device that a player can operate; memory that stores bet data indicating an amount of a bet that the game terminal has accepted; and a controller that executes processing of: (a) receiving a bet end signal, which indicates that betting has ended, along with bet data that the game terminal has accepted, from the game terminal; (b) storing the bet data thus received in the memory; (c) transmitting a first shaking motion start signal, which causes a first shaking motion by the shaking device to start, to the dice movable unit; (d) comparing the bet data thus stored in the memory by the processing (b) and transmitting a permission signal, which permits an operation by the operation device, to the game terminal that has transmitted a value of largest amount; (e) receiving an operation signal indicating that the operation device has been operated from a game terminal that has transmitted the permission signal; and (f) transmitting a second shaking motion start signal, which causes a second shaking motion by the shaking device to start, to the dice movable unit and the game terminal, in which the dice movable unit (b1) starts a first shaking motion in response to having received the first shaking motion start signal from the controller; and (f1) performs the second shaking motion, which has an amplitude larger than that of the first shaking

motion, in response to having received the second shaking motion start signal from the controller, in which the game terminal (f2) performs processing of changing an image displayed on the display device in a case having received the second shaking motion start signal from the controller.

According to the seventeenth aspect of the present invention, when the controller receives a bet end signal that indicates that a bet operation has been ended along with bet data that indicates an amount thus bet, from the game terminal, the controller stores the bet data in the memory. Then, the controller transmits a first shaking motion start signal that causes the dice movable unit to perform a first shaking motion, and the dice movable unit that has received this causes the shaking device to start the first shaking motion. Next, the controller compares the bet data thus stored in the memory and transmits a permission signal by an operation device to the game terminal that has transmitted bet data indicating a value of largest amount. In the game terminal to which the permission signal has been transmitted, when the operation device is operated, an operation signal is transmitted from the game terminal. Then, in response to having received the operation signal, the controller transmits a second shaking motion start signal that causes the dice movable unit to perform a second shaking motion, and the shaking device of the dice movable unit performs a second shaking motion. At this time, the amplitude of the second shaking motion is larger than that of the first shaking motion. Furthermore, the game terminal that has received the second shaking motion start signal from the controller performs processing of shaking an image displayed on the display device.

Thus, by providing an opportunity for a player to be able to shake the dice and by shaking an image of the display displayed on the game terminal upon the shaking motion, it allows the player to participate in the game actively, and can provide a live aspect by prompting so that the player gets the feeling of participating in the game.

A eighteenth aspect of the present invention is the gaming system according to the fourth aspect in which the processing of changing the image in the processing (f2) is processing that causes an image to momentarily shake.

According to the eighteenth aspect of the present invention, in addition to the gaming system according to the fourth aspect, the game terminal causes an image displayed on the display device to shake momentarily in response to having received the second shaking motion start signal.

According to a nineteenth aspect of the present invention, a die used in a gaming machine, which detects a number of dots on a die using RFID tags, includes a first foam member; a second foam member that covers an outside of the first foam member and has a foam expansion ratio relative to an original volume thereof which is lower than that of the first foam member; and a covering member that covers an outside of the second foam member, in which the RFID tags are disposed at each face of the first foam member and are held between the first foam member and the second foam member.

According to the nineteenth aspect of the present invention, since a foam member is used for a base material, weight reduction of the die is possible. Furthermore, since the RFID tags are disposed in the vicinity of the foam member with the three-piece structure of the core portion **71**, the intermediate portion **72**, and the covering portion **73**, buffering shock transmitted to the RFID tags **51** to **56** due to shock to the dice is possible by way of the foam member, whereby the RFID tags **51** to **5** can be protected. Furthermore, the RFID tags are disposed between the first foam member and the second foam member, and the second foam member is made of a foam member that is relatively harder than the first foam member. Therefore, an amount of deformation of the second foam member due to shock to the dice is reduced, and it is possible to prevent failure such as by damage to an RFID tag due to deformation of the RFID tag along with deformation of the second foam member. Thus, it is possible to provide a weight reduction in dice and dice that realize protection of the RFID tags thereof.

According to a twenty third aspect of the present invention, a detection device that is used in a gaming system that detects a number of dots of a die, and detects a number of dots of a die having a wireless tag, includes: a reader that reads data stored in the wireless tag; and a controller that processes information thus read by the reader, in which the wireless tag includes: a unique information storage portion that stores unique information of the wireless tag, a number of dots information storage portion that stores number of dots information of a die in any of a plurality of storage locations, a serial information storage portion that stores die serial information unique to the die, and an error detection information storage portion that stores error detection information, and in which the controller performs processing of: (a) acquiring address information indicating a location at which the number of dots information is stored among the plurality of storage locations in the number of dots information storage portion, using the unique information read from the unique information storage portion by the reader, (b) acquiring the number of dots information from the number of dots information storage portion of the wireless tag using the reader, based on the address information, (c) acquiring the die serial information from the die serial information storage portion and the error detection information from the error detection storage portion using the reader, (d) calculating a CRC value according to a CRC method using the unique information, the unique number of dots information, and the die serial information, and

(e) comparing the error detection information with the CRC value calculated in the processing of (d).

According to the twenty third aspect of the present invention, with the detection device according to the present invention, after having acquired from the reader address information indicating the location, among the plurality of storage locations in the number of dots information storage portion, at which the number of dots information is stored using the unique information stored in the wireless tag, the controller acquires number of dots information from the address via the reader.

In addition, the controller acquires die serial information unique to the die from the die serial information storage portion of the wireless tag, and error detection information from the error detection information storage portion.

Thereafter, processing of calculating the CRC value according to the CRC method using the unique information, number of dots information and die serial information, and of comparing the error detection information and the CRC value thereof is performed.

It is thereby possible to acquire correct number of dots information from the wireless tag, since it is revealed that there are no errors in the information read if the error detection information and the CRC value newly calculated are the same.

According to a twenty fourth aspect of the present invention, in addition to the detection device as described in the twenty third aspect, the processing of (a) is processing for

obtaining the address information using the unique information and a predetermined function stored in a storage portion of the controller.

According to the twenty fourth aspect of the present invention, in addition to the detection device as described in the twenty third aspect, the processing of (a) performed by the reading device obtains address information using unique information and a predetermined function.

It is thereby possible to read number of dots information from a plurality of storage locations without mistakes.

According to a twenty fifth aspect of the present invention, in addition to the detection device as described in the twenty third aspect, color information of the die is included in the number of dots information.

According to the twenty fifth aspect of the present invention, in addition to the detection device as described in the twenty third aspect, color information of the die is included in the number of dots information.

It is thereby also possible to use the color of a die as number of dots information.

According to a twenty sixth aspect of the present invention, in addition to the detection device as described in the twenty third aspect, the wireless tag is respectively provided to each face of the die.

According to the twenty sixth aspect of the present invention, in addition to the detection device as described in the twenty third aspect, the wireless tag is provided in each face of the die.

The reading device can thereby read precise detection information, since what the number of dots of the die is can be read from the wireless tags disposed in individual faces.

According to a twenty seventh aspect of the present invention, a method for detecting a number of dots of a die having a wireless tag includes the steps of: (a) calculating an address at which number of dots information of a die is stored, using unique information of the wireless tag read from the wireless tag; (b) acquiring the number of dots information from the address thus calculated in step (a); (c) acquiring die serial information indicating unique information of the die stored in the wireless tag, and error detection information used in error detection; (d) calculating a CRC value according to a CRC method using the unique information, the die serial information, and the number of dots information; and (e) comparing the error detection information and the CRC value calculated in step (d).

According to a twenty eighth aspect of the present invention, in the detection method as described in the twenty seventh aspect, step (a) is a step for obtaining the address information using the unique information and a predetermined function stored in a storage portion of a controller.

According to a twenty ninth aspect of the present invention, in the detection method as described in the twenty seventh aspect, color information of the die is included in the number of dots information.

According to a thirtieth aspect of the present invention, in the detection method as described in the twenty seventh aspect, the wireless tag is respectively provided to each face of the die.

According to a thirty first aspect of the present invention, a detection device that is used in a gaming system that detects a number of dots of a die, and detects a number of dots of a die having a plurality of wireless tags, includes: a reader that reads data stored in the wireless tag; and a controller that processes information thus read by the reader, in which the wireless tag includes: a unique information storage portion that stores unique information of the wireless tag; and a number of dots information storage portion that stores number of dots information of a die in any of a plurality of storage locations, and in which the controller performs processing of:

(a) acquiring address information indicating a location at which the number of dots information is stored among the plurality of storage locations in the number of dots information storage portion, using the unique information read from the unique information storage portion by the reader, and (b) acquiring the number of dots information from the number of dots information storage portion of the wireless tag using the reader, based on the address information.

In the detection device according to the present invention, when the controller acquires unique information stored in the unique information storage portion of the wireless tag via the reader, using this unique information, the controller acquires the address information indicating at which storage location, among the plurality of storage locations, the number of dots information stored in the number of dots information storage portion of the wireless tag is stored.

Then, based on the address information thus acquired, it is possible to further acquire the number of dots information of the wireless tag via the reader.

With this, it is possible to configure so that the addresses at which number of dots information is stored differs, and it is possible to prevent fraudulent reading.

According to a thirty second aspect of the present invention, in the detection device as described in the thirty first aspect, the number of dots information storage portion includes, in any of the plurality of storage locations, an error detection information storage portion that stores error detection information, and the controller further performs processing of:

(a2) acquiring second address information indicating a location of the error detection information storage portion, among the plurality of storage locations in the number of dots information storage portion, using the unique information read from the unique information storage portion by the reader, and (b2) acquiring the error detection information from the error detection information storage portion of the wireless tag using the reader, based on the second address information.

According to the thirty second aspect of the present invention, in addition to the detection device as described in the thirty first aspect, the number of dots information storage portion of the wireless tag has an error detection information storage portion that stores error detection information in any among the plurality of storage locations, and the second address information set as the error detection information storage portion is acquired using the unique information of the wireless tag acquired via the reader.

Then, the controller can acquire number of dots information stored in the number of dots information storage portion with the reader, based on the second address information.

According to a thirty third aspect of the present invention, in the detection device as described in the thirty first aspect, the wireless tag further includes a serial information storage portion that stores die serial information unique to the die, and the die serial information is a value common in the plurality of wireless tags included by the die.

According to the thirty third aspect of the present invention, in addition to the detection device as described in the thirty first aspect, the wireless tag further has a die serial information storage portion that stores die serial information unique to the die, the die serial information being a common value to the plurality of wireless tags possessed by one die.

It is thereby possible to easily recognize with which die a fraudulent act has been performed, since the die serial

information will differ among the plurality of wireless tags in a case of the information of one wireless tag having been fraudulently replaced.

According to a thirty fourth aspect of the present invention, in the detection device as described in the thirty first aspect, the wireless tag further includes a serial information storage portion that stores die serial information unique to the die, in which the number of dots information storage portion includes, in any of the plurality of storage locations, an error detection information storage portion that stores error detection information, and the controller further performs processing of:

(a2) acquiring second address information indicating a location of the error detection information storage portion, among the plurality of storage locations in the number of dots information storage portion, using the unique information read from the unique information storage portion by the reader, (b2) acquiring the error detection information from the error detection information storage portion of the wireless tag using the reader, based on the second address information, (c) calculating a CRC value according to a CRC method using the unique information, the number of dots information, and the die serial information, and (d) comparing the error detection information and the CRC value calculated in the processing of (c).

After having acquired address information of the number of dots information storage portion from the reader based on the unique information, the controller acquires number of dots information from the address via the reader.

The die serial information is acquired from the die serial information storage portion that stores the die serial information unique to the die.

In addition, error detection information is acquired from the error detection information storage portion.

Thereafter, processing of calculating the CRC value according to the CRC method using the unique information, number of dots information and die serial information, and of comparing the error detection information and the CRC value thereof is performed.

It is thereby possible to acquire correct number of dots information from the wireless tag, since it is revealed that there are no errors in the information read if the error detection information and the CRC value newly calculated are the same.

According to a thirty fifth aspect of the present invention, in the detection device as described in the thirty first aspect, the processing of (a) is processing for obtaining the address information using the unique information and a predetermined function stored in a storage portion of the controller.

According to a thirty sixth aspect of the present invention, in the detection device as described in the thirty second aspect, the processing of (a2) is processing for obtaining the address information using the unique information and a predetermined function stored in a storage portion of the controller.

According to a thirty seventh aspect of the present invention, in the detection device as described in the thirty first aspect, color information of the die is included in the number of dots information.

According to a thirty eighth aspect of the present invention, in the detection device as described in the thirty first aspect, the wireless tag is respectively provided to each face of the die.

Effects of the Invention

According to the present invention, it is possible to provide a gaming machine that allows a larger number of terminals to be installed in a limited area while improving visibility.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view showing the gaming machine **1** according to an embodiment of the present invention;

FIG. **2** is a perspective view showing the gaming machine **1** according to the embodiment of the present invention with a top door **3** being open;

FIG. **3** is a back view showing the gaming machine **1** according to the embodiment of the present invention;

FIG. **4** is a functional block diagram of the gaming machine **1** according to the embodiment of the present invention;

FIG. **5** is a diagram showing a circular arrangement of the gaming machines **1** according to the embodiment of the present invention;

FIG. **6** is a diagram showing a comparative example of FIG. **5**;

FIG. **7** is a cross-sectional view taken along line A-A in FIG. **2**;

FIG. **8** is an exploded view of the vicinity of a foot lamp **25** according to the embodiment of the present invention;

FIG. **9** is an exploded view of the foot lamp **25** according to the embodiment of the present invention;

FIG. **10** is an enlarged view of an operating unit **32**b according to the embodiment of the present invention;

FIG. **11** is an enlarged exploded view of the top door **3**, in the vicinity of an arm rest **35**, according to the embodiment of the present invention;

FIG. **12** is an enlarged exploded view of the top door **3**, in the vicinity of a cover member **38**, according to the embodiment of the present invention;

FIG. **13** is a diagram showing a relationship between a coin sensor **41** and a sub housing portion **21** of the cabinet **2** in a case where the top door **3** is opened and closed, according to the embodiment of the present invention;

FIG. **14** is a partial enlarged view of the vicinity of a coin sensor **41** according to an embodiment of the present invention;

FIG. **15** is a cross-sectional view of a hopper unit **4** according to the embodiment of the present invention;

FIG. **16** is an enlarged exploded view of the vicinity of an application unit **5** disposed on a back face side R of the cabinet **2** according to the embodiment of the present invention;

FIG. **17** is a diagram showing a main flow according to the embodiment of the present invention; and

FIG. **18** is a diagram showing a flow of the operating unit during game execution in a case of playing Sic Bo according to the embodiment of the present invention.

FIG. **1**A is a flowchart schematically showing a processing sequence of a gaming machine according to an embodiment of the present invention;

FIG. **2**A is a perspective view of a gaming machine according to the embodiment of the present invention;

FIG. **3**A is an enlarged view of a playing unit of the gaming machine shown in FIG. **2**A;

FIG. **4**A is an external perspective view of a die according to the embodiment of the present invention;

FIG. **5**A is a development view of a die according to the embodiment of the present invention;

FIGS. **6**A to **9**A show IC tag readable areas by IC tag readers according to the embodiment of the present invention;

FIG. **10**A shows a sheet attached to each face of a die according the embodiment of the present invention;

FIG. **11**A is an image showing a state in which a die according to the embodiment of the present invention is imaged substantially in the vertically upward direction by an infrared camera;

FIG. **12**A shows a sheet attached to each face of a die according the embodiment of the present invention;

FIG. **13**A shows an image in which a die according to the embodiment of the present invention that has come to rest at a tilt on a playing board, is imaged substantially in the vertically upward direction by an infrared camera;

FIG. **14**A shows an example of a display screen according to the embodiment of the present invention;

FIG. **15**A is a block diagram showing the internal configuration of the gaming machine shown in FIG. **2**A;

FIG. **16**A is a block diagram showing the internal configuration of the station shown in FIG. **2**A;

FIG. **17**A is a diagram showing an instruction image display determination table according to the embodiment of the present invention;

FIG. **18**A is a diagram showing a bet existence determination table according to the embodiment of the present invention;

FIG. **19**A is a diagram showing an oscillation mode data table according to the embodiment of the present invention;

FIG. **20**A is a diagram showing a rendered effect table according to the embodiment of the present invention;

FIG. **21**A is a diagram showing an IC tag data table according to the embodiment of the present invention;

FIG. **22**A is an infrared camera imaging data table according to the embodiment of the present invention;

FIG. **23**A is a dot pattern data classification table according to the embodiment of the present invention;

FIG. **24**A is a number of dots-dot pattern data table according to the embodiment of the present invention;

FIG. **25**A is a position, classification, and number of dots data table according to the embodiment of the present invention;

FIG. **26**A is a classification and number of dots data table according to the embodiment of the present invention;

FIGS. **27**A to **31**A show examples of display screens according to the embodiment of the present invention;

FIG. **32**A shows an example of a display screen according to the embodiment of the present invention;

FIG. **33**A is a flowchart showing dice game processing executed in a gaming machine according to the embodiment of the present invention;

FIG. **34**A is a flowchart showing bet processing executed in a gaming machine according to the embodiment of the present invention;

FIG. **35**A is a flowchart showing subsequent game bet processing executed in a gaming machine according to the embodiment of the present invention;

FIG. **36**A is a flowchart showing dice rolling processing executed in a gaming machine according to the embodiment of the present invention;

FIG. **37**A is a flowchart showing dots on dice detection processing **1** executed in a gaming machine according to the embodiment of the present invention; and

FIG. **38**A is a flowchart showing dots on dice detection processing **2** executed in a gaming machine according to the embodiment of the present invention.

FIG. **1**B is a flowchart schematically showing a processing sequence of a gaming machine according to an embodiment of the present invention;

FIG. **2**B is a perspective view of a gaming machine according to the embodiment of the present invention;

FIG. **3**B is an enlarged view of a playing unit of the gaming machine shown in FIG. **2**B;

FIG. **4**B is an external perspective view of a die according to the embodiment of the present invention;

FIG. **5**B is a development view of a die according to the embodiment of the present invention;

FIGS. **6**B to **9**B show IC tag readable areas by IC tag readers according to the embodiment of the present invention;

FIG. **10**B shows a sheet attached to each face of a die according the embodiment of the present invention;

FIG. **11**B is an image showing a state in which a die according to the embodiment of the present invention is imaged substantially in the vertically upward direction by an infrared camera;

FIG. **12**B shows a sheet attached to each face of a die according the embodiment of the present invention;

FIG. **13**B shows an image in which a die according to the embodiment of the present invention that has come to rest at a tilt on a playing board, is imaged substantially in the vertically upward direction by an infrared camera;

FIG. **14**B shows an example of a display screen according to the embodiment of the present invention;

FIG. **15**B is a block diagram showing the internal configuration of the gaming machine shown in FIG. **2**B;

FIG. **16**B is a block diagram showing the internal configuration of the station shown in FIG. **2**B;

FIG. **17**B is a diagram showing an instruction image display determination table according to the embodiment of the present invention;

FIG. **18**B is a diagram showing a bet existence determination table according to the embodiment of the present invention;

FIG. **19**B is a diagram showing an oscillation mode data table according to the embodiment of the present invention;

FIG. **20**B is a diagram showing a rendered effect table according to the embodiment of the present invention;

FIG. **21**B is a diagram showing an IC tag data table according to the embodiment of the present invention;

FIG. **22**B is an infrared camera imaging data table according to the embodiment of the present invention;

FIG. **23**B is a dot pattern data classification table according to the embodiment of the present invention;

FIG. **24**B is a number of dots-dot pattern data table according to the embodiment of the present invention;

FIGS. **25**B to **29**B show examples of display screens according to the embodiment of the present invention;

FIG. **30**B is a flowchart showing dice game processing executed in a gaming machine according to the embodiment of the present invention;

FIG. **31**B is a flowchart showing bet processing executed in a gaming machine according to the embodiment of the present invention;

FIG. **32**B is a flowchart showing subsequent game bet processing executed in a gaming machine according to the embodiment of the present invention;

FIG. **33**B is a flowchart showing dice rolling processing executed in a gaming machine according to the embodiment of the present invention; and

FIG. **34**B is a flowchart showing dot detection processing executed in a gaming machine according to the embodiment of the present invention.

FIG. **1**C is a flowchart schematically showing a processing sequence of a gaming machine according to an embodiment of the present invention;

FIG. **2**C is a perspective view of a gaming machine according to the embodiment of the present invention;

FIG. **3**C is an enlarged view of a playing unit of the gaming machine shown in FIG. **2**C;

FIG. **4**C is an external perspective view of a die according to the embodiment of the present invention;

FIG. **5**C is a development view of a die according to the embodiment of the present invention;

FIGS. **6**C to **9**C show IC tag readable areas by IC tag readers according to the embodiment of the present invention;

FIG. **10**C shows a sheet attached to each face of a die according the embodiment of the present invention;

FIG. **11**C is an image showing a state in which a die according to the embodiment of the present invention is captured substantially in the vertically upward direction by an infrared camera;

FIG. **12**C shows a sheet attached to each face of a die according the embodiment of the present invention;

FIG. **13**C shows an image in which a die according to the embodiment of the present invention that has come to rest at a tilt on a playing board, is captured substantially in the vertically upward direction by an infrared camera;

FIG. **14**C shows an example of a display screen according to the embodiment of the present invention;

FIG. **15**C is a block diagram showing the internal configuration of the gaming machine shown in FIG. **20**;

FIG. **16**C is a block diagram showing the internal configuration of the station shown in FIG. **2**C;

FIG. **17**C is a diagram showing an instruction image display determination table according to the embodiment of the present invention;

FIG. **18**C is a diagram showing a bet existence determination table according to the embodiment of the present invention;

FIG. **19**C is a diagram showing an oscillation mode data table according to the embodiment of the present invention;

FIG. **20**C is a diagram showing a rendered effect table according to the embodiment of the present invention;

FIG. **21**C is a diagram showing an IC tag data table according to the embodiment of the present invention;

FIG. **22**C is an infrared camera capturing data table according to the embodiment of the present invention;

FIG. **23**C is a dot pattern data classification table according to the embodiment of the present invention;

FIG. **24**C is a number of dots-dot pattern data table according to the embodiment of the present invention;

FIGS. **25**C to **29**C show examples of display screens according to the embodiment of the present invention;

FIG. **30**C is a flowchart showing dice game processing executed in a gaming machine according to the embodiment of the present invention;

FIG. **31**C is a flowchart showing bet processing executed in a gaming machine according to the embodiment of the present invention;

FIG. **32**C is a flowchart showing subsequent game bet processing executed in a gaming machine according to the embodiment of the present invention;

FIG. **33**C is a flowchart showing dice rolling processing executed in a gaming machine according to the embodiment of the present invention; and

FIG. **34**C is a flowchart showing dot detection processing executed in a gaming machine according to the embodiment of the present invention.

FIG. **1**D is a flowchart schematically showing a processing sequence of a gaming machine according to an embodiment of the present invention;

FIG. **2**D is a perspective view of a gaming machine according to the embodiment of the present invention;

FIG. **3**D is an enlarged view of a playing unit of the gaming machine shown in FIG. **2**D;

FIG. **4**D is an external perspective view of a die according to the embodiment of the present invention;

FIG. **5**D is a development view of a die according to the embodiment of the present invention;

FIGS. **6**D to **9**D show IC tag readable areas by IC tag readers according to the embodiment of the present invention;

FIG. **10**D shows a sheet attached to each face of a die according the embodiment of the present invention;

FIG. **11**D is an image showing a state in which a die according to the embodiment of the present invention is captured substantially in the vertically upward direction by an infrared camera;

FIG. **12**D shows a sheet attached to each face of a die according the embodiment of the present invention;

FIG. **13**D shows an image in which a die according to the embodiment of the present invention that has come to rest at a tilt on a playing board, is captured substantially in the vertically upward direction by an infrared camera;

FIG. **14**D shows an example of a display screen according to the embodiment of the present invention;

FIG. **15**D is a block diagram showing the internal configuration of the gaming machine shown in FIG. **2**D.

FIG. **16**D is a block diagram showing the internal configuration of the station shown in FIG. **2**D.

FIG. **17**D is a diagram showing an instruction image display determination table according to the embodiment of the present invention;

FIG. **18**D is a diagram showing a bet existence determination table according to the embodiment of the present invention;

FIG. **19**D is a diagram showing an oscillation mode data table according to the embodiment of the present invention;

FIG. **20**D is a diagram showing a rendered effect table according to the embodiment of the present invention;

FIG. **21**D is a diagram showing an IC tag data table according to the embodiment of the present invention;

FIG. **22** is an infrared camera capturing data table according to the embodiment of the present invention;

FIG. **23**D is a dot pattern data classification table according to the embodiment of the present invention;

FIG. **24**D is a number of dots-dot pattern data table according to the embodiment of the present invention;

FIGS. **25**D to **29**D show examples of display screens according to the embodiment of the present invention;

FIG. **30**D is a flowchart showing dice game processing executed in a gaming machine according to the embodiment of the present invention; and

FIG. **31**D is a flowchart showing bet processing executed in a gaming machine according to the embodiment of the present invention.

FIG. **1**E is a flowchart schematically showing a processing sequence of a gaming system according to an embodiment of the present invention;

FIG. **2**E is a perspective view schematically showing an example of a gaming machine according to an embodiment of the present invention;

FIG. **3**E is a perspective view showing a game terminal according to an embodiment of the present invention;

FIG. **4**E is a perspective view showing a dice movable unit according to an embodiment of the present invention;

FIG. **5**E shows a sheet attached to each face of a die according an embodiment of the present invention;

FIG. **6**E shows an image in which a die according to an embodiment of the present invention that has come to rest on a playing board, is captured substantially in the vertically upward direction by an infrared camera;

FIG. **7**E is a diagram showing an example of an image displayed on a display screen of a history display unit according to an embodiment of the present invention;

FIG. **8**E is a diagram showing an example of a display screen displayed on a display device according to an embodiment of the present invention;

FIG. **9**E is a block diagram showing an internal configuration of a controller according to an embodiment of the present embodiment;

FIG. **10**E is a block diagram showing an internal configuration of a game terminal according to an embodiment of the present embodiment;

FIG. **11**E shows an instruction image display determination table according to an embodiment of the present invention;

FIG. **12**E shows a bet existence determination table according to an embodiment of the present invention;

FIG. **13**E shows an IC tag data table according to an embodiment of the present invention;

FIG. **14**E shows an infrared camera capturing data table according to an embodiment of the present invention;

FIG. **15**E shows a dot pattern data classification table according to an embodiment of the present invention;

FIG. **16**E shows a number of dots-dot pattern data table according to an embodiment of the present invention;

FIG. **17**E shows a bet start instruction image according to an embodiment of the present invention;

FIG. **18**E shows a bet not recommended image according to an embodiment of the present invention;

FIG. **19**E shows a bet end instruction image according to an embodiment of the present invention;

FIG. **20**E is an image that notifies to each game terminals according to an embodiment of the present invention that bet acceptance has ended;

FIG. **21**E illustrates a display example of a display of each of game terminal according to an embodiment of the present invention;

FIG. **22**E is a flowchart showing processing of a gaming system according to an embodiment of the present invention;

FIG. **23**E is a flowchart showing processing of a gaming system according to an embodiment of the present invention;

FIG. **24**E is a flowchart showing processing of a gaming system according to an embodiment of the present invention;

FIG. **25**E is a flowchart showing processing of a gaming system according to an embodiment of the present invention;

FIG. **26**E is a flowchart showing processing of a gaming system according to an embodiment of the present invention;

FIG. **27**E is a flowchart showing number of dots on dice detection processing of FIG. **26**E;

FIG. **28**E is a block diagram showing a modified example relating to arrangement; and

FIG. **29**E is a block diagram showing a modified example relating to arrangement.

FIG. **1**F is a perspective view that includes a partial cross section showing an internal configuration of a die according to an embodiment of the present invention;

FIG. **2**F is a perspective view of a gaming machine according to the embodiment of the present invention;

FIG. **3**F is an enlarged view of a playing unit of the gaming machine shown in FIG. **2**F;

FIG. **4**F is an exploded perspective view of a die according to the embodiment of the present invention;

FIG. **5**F is a cross sectional view of a die according to the embodiment of the present invention;

FIG. **6**F is a diagram showing a readable area of an RFID tag using an RFID tag reader according to the embodiment of the present invention;

FIG. **7**F shows an example of a display screen according to the embodiment of the present invention;

FIG. **8**F is a block diagram showing an internal configuration of the gaming machine shown in FIG. **2**F;

FIG. **9**F is a block diagram showing an internal configuration of a station shown in FIG. **2**F;

FIG. **10**F is a block diagram showing an example of a different configuration of the game device according to the embodiment of the present invention;

FIG. **11**F is a block diagram showing another example of a different configuration of the game device according to the second embodiment of the present invention; and

FIG. **12**F is a diagram showing an example of an image displayed on a display screen of a history display unit.

FIG. **1**G is a diagram showing an outline of the flow executed in a gaming machine according to an embodiment of the present invention;

FIG. **2**G is an overall view of the gaming machine according to an embodiment of the present invention;

FIG. **3**G is a perspective view of a dice movable unit according to an embodiment of the present invention;

FIG. **4**G is a diagram illustrating a cross-section along the line A-A in FIG. **3**G;

FIG. **5**G is a schematic representation of an antenna of a playing board according to an embodiment of the present invention;

FIG. **6**G is a configurational diagram of a detection device according to an embodiment of the present invention;

FIG. **7**G is a block diagram showing an internal configuration of a reader according to an embodiment of the present invention;

FIG. **8**G is an exploded perspective view of a die according to an embodiment of the present invention;

FIG. **9**G is a block diagram showing an internal configuration of a wireless IC tag according to an embodiment of the present invention;

FIG. **10**G is a diagram showing a storage table that is stored in a wireless IC tag according an embodiment of the present invention;

FIG. **11**G is a block diagram showing an internal configuration of a controller according to an embodiment of the present invention; and

FIG. **12**G is a flowchart showing processing of error detection according to an embodiment of the present invention.

EXPLANATION OF REFERENCE NUMERALS

1 gaming machine
2 cabinet
3 top door
4 hopper unit
5 application unit

32 operating unit
61 CPU
62 RAM
63 ROM

PREFERRED MODE FOR CARRYING OUT THE INVENTION

An embodiment of the present invention is described hereinafter with reference to the accompanying drawings.

Overall Summary

An embodiment of the gaming machine according to the present invention is described hereinafter with reference to the accompanying drawings. First, an overall configuration of a gaming machine **1** according to the present embodiment is described with reference to FIGS. **1** to **3**. FIG. **1** is a perspective view of the gaming machine **1**. FIG. **2** is a perspective view showing the gaming machine **1** with a top door **3** being open. FIG. **3** is a back view of the gaming machine **1**.

The gaming machine **1** is composed of: a cabinet **2** as a cabinet for housing a circuit substrate and the like; a top door **3** in which a main display **31**, an operating unit **32** and the like are disposed; a hopper unit **4** being a retaining device for medals and coins, which discharges the medals and coins; and an application unit **5** that can be attached and removed, to which a speaker **51**, a lamp portion **52**, and the like are disposed.

The cabinet **2** houses a circuit substrate and the like, and constitutes a main body of the gaming machine **1**. The cabinet **2** includes a sub housing portion **21** formed on a lower side (a lower side in the drawings is hereinafter referred to as a lower side B) of the top door **3**, a main housing portion **22** formed on the lower side B of the sub housing portion **21**, and a supporting portion **23** formed on a further lower side of the main housing portion **22**. The sub housing portion **21** houses a relay board unit **211** (described later) and a human body detection sensor **29**, which is the first sensor. In addition, the main housing portion **22** houses a main control unit **221** (described later).

An opening portion **20** is formed on an upper side T (an upper side in the drawings is hereinafter referred to as an upper side T) of the sub housing portion **21**. In the present embodiment, the opening portion **20** constitutes an entirety of the upper side T of the cabinet **2**; in other words, the entirety of the upper side T of the sub housing portion **21** is open.

A card insertion opening **26** into which a player card, which is an information storage medium for a PTS (player tracking system), is inserted, and a player information display portion **27** for displaying information stored on the player card inserted are provided on a front side F (a front side in the drawings is hereinafter referred to as a front side F) of the sub housing portion **21**, which is a front side F of the cabinet **2**. The player card stores information related to a player such as a player ID, and the player information displaying portion **27** displays history information of the player, who owns the player card inserted into the card insertion opening **26**. In the present embodiment, the player card also stores a play history.

In addition, in the cabinet **2**, a foot lamp **25** is provided on the front side F of the cabinet **2** and on the lower side B of the main housing portion **22**. The foot lamp **25** is disposed on the front side F of the supporting portion **23**. The foot lamp **25** emits light toward the lower side B and irradiates a region corresponding to feet of a player in a case where the player is seated in front of the gaming machine **1**.

A supporting plate **232** is provided on the lower side B of the cabinet **2**. The supporting plate **232** is disposed on the lowermost side B of the cabinet **2** so as to project from an end portion on the lower side B of the supporting portion **23** toward the front side F.

In addition, as shown in FIG. **3**, a cabinet illuminating portion **24** is provided on a back side (a back side in the drawings is hereinafter referred to as a back side F) of the cabinet **2**. The cabinet illuminating portion **24** emits light or switches between modes of illumination in accordance with a control signal from the main control unit **221**.

The top door **3** is disposed on the upper side T of the cabinet **2** so as to cover an entirety of the opening portion **20** formed on the sub housing portion **21** of the cabinet **2**. The top door **3** is disposed so as to cover the upper side T of the cabinet **2** like a lid and opens and closes rotationally on an end thereof on the back side R (see FIG. **2**).

In addition, the top door **3** includes: a main display **31** for displaying mainly images related to the game; an operating portion **32** on which a player performs operations related to the game; a coin slot **33** into which coins are inserted; and a bill slot **34** into which bills are inserted (see FIG. **1**).

A hopper unit **4** is disposed on the lower side B of the top door **3** and the sub housing portion **21**, to a right side of the cabinet **2** (a right side of the cabinet is hereinafter referred to as a right side R2). The hopper unit **4** constitutes a face on the right side R2 of the cabinet **2**, namely a face on the right side R2 of the gaming machine **1**. The hopper unit **4** is provided as an independent body from the cabinet **2** and connected to the cabinet **2** via an opening portion for a hopper (not shown) provided on a face on the lower side B of the sub housing portion **21**.

The hopper unit **4** is formed in a vertically long shape, which is elongated in a thickness direction (F-R direction). In addition, a coin payout opening **42** is formed on the front side F of the hopper unit **4**, and coins discharged from the coin payout opening **42** are collected in the coin tray **43**.

An application unit **5** is disposed on the upper side T, in an end on the back face side R, of the cabinet **2**. An application unit **5** is disposed on the upper side T, in an end on the back face side R, of the cabinet **2**.

In the present embodiment, the application unit **5** includes a speaker **51** and a lamp portion **52** (see FIG. **1**). In other words, in the gaming machine **1**, the speaker **51** and the lamp portion **52**, as a unit, are formed to be detachable (details are described later). Functional Configuration A circuit configuration of the gaming machine **1** is described hereinafter with reference to FIG. **4**.

FIG. **4** is a functional block diagram of the gaming machine **1**.

The gaming machine **1** according to the present embodiment is basically configured around a microcomputer **65**, which is composed of a CPU **61**, RAM **62**, ROM **63**, and a bus **64** for transferring data therebetween. The RAM **62** and the ROM **63** are connected to the CPU **61** via the bus **64**. The RAM **52** is memory for temporarily storing various data computed by the CPU **61**. The ROM **63** stores various programs, data tables and the like for performing processing required for controlling the gaming machine **1**.

The main control unit **221** including the microcomputer **65** is housed by the main housing portion **22** in the cabinet **2**.

A communication interface **78** and a relay circuit **70** are connected to the microcomputer **65** via an I/O interface **66**. The communication interface **78** is a module for connecting an external network. For example, in a case where a plurality of gaming machines **1** is administered by a server, the

gaming machines **1** can communicate with each other and with the server in a bidirectional manner, via the communication interface **78**. This allows the gaming machine **1** to execute games in cooperation with the server and other gaming machines **1**.

The relay circuit **70** is a circuit for connecting driving circuits and devices (described later) with the microcomputer **65**. The relay board unit **211** including the relay circuit **70** is housed by the sub housing portion **21** of the cabinet **2**.

The sub housing portion **21** is disposed on an uppermost side T of the cabinet **2**, and in a position readily accessible by opening the top door **3**. In the present embodiment, only the relay board unit **211** including the relay circuit **70**, not the main control unit **221** including the microcomputer **65**, is disposed in the sub housing portion **21**. In other words, the relay circuit **70**, which only relays control signals, is disposed in the most accessible position inside the cabinet **2**, and modules (described later) are connected to the microcomputer **65** via the relay circuit **70**.

The relay circuit **70** and each of the other modules (described later) are further connected by the I/O interface **71**. The modules connected to the microcomputer **65** via the relay circuit **70** are described hereinafter.

An image processing circuit **72** is connected to the relay circuit **70** via the I/O interface **71**. The image processing circuit **72** is connected to the main display **31** and controls operation of the main display **31**.

The image processing circuit **72** includes program ROM, image ROM, an image control CPU, work RAM, a video display processor (VDP), video RAM, and the like (not shown). The program ROM stores an image control program with respect to the display functions of the main display **31**, and various kinds of selection tables. The image ROM stores pixel data for creating an image, for example, pixel data for creating an image on the main display **31**. In addition, the image control CPU determines an image to be displayed on the main display **31** from among the pixel data sets stored beforehand in the image ROM according to the image control program stored beforehand in the program ROM based upon the parameters set by the microcomputer **65**. The work RAM is configured as a temporary storage means in a case where the image control program is executed by the image control CPU. The VDP is a component for creating an image data that accords with the display contents determined by the image control CPU, and for outputting the image thus created to the main display **31**. It should be noted that the video RAM is configured as a temporary storage device used by the VDP for creating an image.

In addition, a hopper unit **4** is connected to the relay circuit **70** via the I/O interface **71**. More specifically, connected to the relay circuit **70** are a hopper driving circuit **44** and a payout complete signal circuit **47** in the hopper unit **4**. The hopper driving circuit **44** controls operation of a hopper device **45**. The payout complete signal circuit **47** manages detection of medals performed by a medal detection portion **46** provided to the hopper device **45**, and checks whether medals discharged externally from the hopper device **45** has reached a payout number or not.

A card identification circuit **73** and a player information display portion driving circuit **74** are connected to the relay circuit **70** via the I/O interface **71**. The card identification circuit **73** is a reader portion that identifies a player card inserted from the PTS card slot **26** and reads information regarding a player stored on the player card. In addition, a player information display portion **27** is connected to the player information display portion driving circuit **74**. Play history information is displayed on the player information display portion **27**, from the information regarding a player read by the card identification circuit **73**.

A sound circuit **75** is connected to the relay circuit **70** via the I/O interface **71**. A speaker **51** is connected to the sound circuit **75**. The speaker **51** generates various sound effects, background music and the like when various effects are made, by an output control by the sound circuit **75** based on a driving signal from the CPU **61**.

A lamp driving circuit **76** is connected to the relay circuit **70** via the I/O interface **71**. Furthermore, a lamp portion (for example, LED) **52** is connected to the lamp driving circuit **76**. The lamp portion **52** emits light in a blinking pattern in accordance with an effect, based on a control signal from the microcomputer **65**.

It should be noted that, in the present embodiment, the sound circuit **75**, the speaker **51**, the lamp driving circuit **76**, and the lamp portion **52** are configured to be the application unit **5**.

A bill validating driving circuit **77** is connected to the relay circuit **70** via the I/O interface **71**. A bill validating device **341** is connected to the bill validating driving circuit **77**. The bill validating device **341** checks whether or not a bill and a bar coded ticket is genuine. Upon reception of a genuine bill, the bill validating device **341** inputs a value of the bill thus received to the CPU **61**, based on an identification signal from the bill validating driving circuit **77**. Furthermore, upon reception of a genuine bar coded ticket, the bill validating device **341** inputs a credit amount and the like recorded on the bar coded ticket thus received to the CPU **61**, based on an identification signal from the bill validating driving circuit **77**.

An operating unit control circuit **320** is connected to the relay circuit **70** via the I/O interface **71**. In addition, the control unit **32** is connected to the operating unit control circuit **320**. In the present embodiment, the control unit **32** is configured to be an exchangeable module. The control unit **32** can be exchanged accordingly with a module prepared in accordance with a type of a game provided by the gaming machine **1**, along with the operating unit control circuit **320**.

A coin sensor **41** is connected to the relay circuit **70** via the I/O interface **71**. The coin sensor **41** detects a coin, which is inserted via the coin slot **33**, passing by. Cabinet

The cabinet **2** is described in detail hereinafter with reference to FIGS. **1** to **3** and FIGS. **5** to **9**. FIG. **5** is a diagram showing a circular arrangement of the gaming machines **1**. FIG. **6** is a diagram showing a comparative example of FIG. **5**. FIG. **7** is a cross-sectional view taken along line A-A in FIG. **2**. FIG. **8** is an enlarged perspective view of the supporting portion **23** and the vicinity of the foot lamp **25**. FIG. **9** is an exploded view of the foot lamp **25**.

Referring to FIGS. **1**, **2** and **5**, hereinafter, a lateral face of the cabinet **2** on the right side R**2** is referred to as a right lateral face **202**, and a lateral face of the cabinet **2** on the left side L is referred to as a left lateral face **204**, seen from the front side F of the gaming machine **1**. In addition, a face on a rear side (the back side R) of the gaming machine **1** is referred to as a back face **201**. A right end face **203** is formed on the right lateral face **202**, between an end on the back side R and the back face **201**. Similarly, a left end face **205** is formed on the left lateral face **204**, between an end on the back side R and the back face **201**.

Thus, seen from the upper side T, the gaming machine **1** with the right end face **203** and the left end face **205** has a six-cornered shape, in which a length in the width direction (L-R**2** direction) of the front side F (distance between X and

X' in FIG. **1**) is longer than a length in the width direction (L-R**2** direction) of the back face **201** (distance between Y and Y' in FIG. **3**).

As used herein, the distance between X and X' is a distance between the right lateral face **202** to the left lateral face **204**. In addition, the distance between Y and Y' is a distance from a contact point between the back face **201** and the right end face **203**, to a contact point between the back face **201** and the left end face **205**.

First, the right end face **203** is a planar surface, which looks like a face made by chamfering a corner horizontally in a direction of gravitational force, connecting two points that are a predetermined distance away from a point of intersection of extended lines of the right lateral face **202** and the back face **201**. Similarly, the left end face **205** is a planar surface, which looks like a face made by chamfering a corner horizontally in the direction of gravitational force, connecting two points that are the predetermined distance away from a point of intersection of extended lines of the left lateral face **204** and the back face **201**.

In addition, the right end face **203** and the left end face **205** are surfaces between corners of which inner angles with respect to the adjacent lateral face and the back face are at least 90 degrees. More specifically, the right end face **203** is formed to have an inner angle with respect to the right lateral face **202** and an inner angle with respect to the back face **201**, which are at least 90 degrees. Similarly, the left end face **205** is formed to have an inner angle with respect to the left lateral face **204** and an inner angle with respect to the back face **201**, which are at least 90 degrees.

The present gaming machine **1** is installed in a game hall, for example, in a semicircular or circular arrangement, with the right end face **203** contacting the left end face **205** of an adjacent gaming machine **1**, as shown in FIG. **5**. This can arrange the gaming machines **1** in a smaller diameter than in a case where substantially rectangular gaming machines, in which the right end face **203** and the left end face **205** are not provided, are installed in a circle (see FIG. **6**), thereby saving total installation space.

In addition, a handle portion **206** is provided in each of the right end face **203** and the left end face **205**, as shown in FIGS. **1** and **2**. The handle portion **206** is a concave portion **207** formed on the faces toward the inside of the cabinet **2**. In the concave portion **207**, a projecting portion **208** is formed, which is a part of the upper side T that projects so as to cover an opening of the concave portion.

In a case where an administrator moves the gaming machine **1**, the administrator can carry the gaming machine by putting their fingers into the concave portion **207** of the handle portion **206** and holding the projecting portion **208** with the fingers bent toward the upper side T.

The handle portion **206** is formed on at least one of the right end face **203** and the left end face **205**, preferably on both thereof.

Returning to FIGS. **1** and **2**, the cabinet **2** includes the sub housing portion **21** and the main housing portion **22**, as described above. The sub housing portion **21** constitutes an upper face of the cabinet **2** and has the opening portion **20** on the upper side T thereof. The top door **3** is disposed so as to cover the opening portion **20**. The main housing portion **22** is disposed on the lower side B of the sub housing portion **21** and substantially in a center in a vertical direction (T-B direction) of the cabinet **2**. In other words, the sub housing portion **21** is formed between the main housing portion **22** and the top door **3**.

In addition, the relay board unit **211** including the relay circuit **70** is housed by the sub housing portion **21** and the main control unit **221** including the microcomputer **65** is housed by the main housing portion **22**. Therefore, only the relay board unit **211** is accessible, even in a case where the top door **3** is illegally opened, and therefore fraud by directly accessing the main control unit **221** can be avoided. Furthermore, for example, in a case where a player puts a drink on an arm rest **35** (described later), even if the drink is spilled on the gaming machine **1**, foreign articles such as the drink can only enter the sub housing portion **21**, and the main control unit **221** will be free from an effect of such foreign articles.

The main housing portion **22** is formed so as to be gradually shorter in length in the thickness direction (hereinafter referred to as the F-R direction), decreasing from the upper side T to the lower side B. The lower side of the main housing portion **22** is the supporting portion **23** that supports the gaming machine **1**.

The supporting portion **23** is formed continuously from the main housing portion **22** to have substantially the same length in the F-R direction as that of the lower side B of the main housing portion **22**. In other words, starting from the top, the gaming machine **1** has the top door **3**; the sub housing portion **21**; the main housing portion **22**; and the supporting portion **23**. A portion on the front side F of the top door **3** and the sub housing portion **21** are formed to project from the main housing portion **22** toward the front side F. On the other hand, the main housing portion **22** is formed to be shorter in length in the F-R direction, descending from the upper side T to the lower side B. This creates a space on the lower side B of the display, i.e. on the lower side B of the sub housing portion **21**. The space is used as a space for accommodating the legs of a player, in a case where a chair is provided in front of a gaming machine **1** and the player sits thereon. Since the player can sit closer to the gaming machine, the installation area for the gaming machine **1**, including a space for accommodating the player, can be reduced.

The main control unit **221** including the microcomputer **65** is housed by the main housing portion **22**. A main housing portion door **222** is provided on the front side F of the main housing portion **22**, which can be open to take out the main control unit **221**.

The sub housing portion **21** houses at least: the relay board unit **221** including the relay circuit **20**; the bill validating device **341**; and the human body detection sensor **29**. In addition, the coin sensor **41** is connected to the top door **3** and housed by the sub housing portion **21**. Furthermore, on an outer face in the front side F of the sub housing portion **21**, the player information displaying portion **27** and the card slot **26**, into which the player card is inserted, are provided.

Since the player information displaying portion **27** and the card slot **26** are provided on an outer face of the sub housing portion **21**, an area of the top door **3** can be made smaller, thereby making the whole gaming machine **1** smaller. In addition, even in a case where a string is attached to the playing card for carrying thereof, the string will not fall on the main display, whereby it is possible to prevent impairment of visual recognition thereby.

As shown in FIG. **7**, the human body detection sensor **29** is disposed on the front side F in the sub housing portion **21**. Furthermore, the human body detection sensor **29** is disposed substantially in a center in the width direction (L-R**2** direction) of the cabinet **2**, i.e. substantially in a center between Z and Z' (distance between Z and Z' in FIG. **1**).

As used herein, the distance between Z and Z' is a distance between the left side L of the cover member **38** and a lateral face on the left side L of the hopper unit **4**.

The human body detection sensor **29** is disposed inside a sensor housing **291**. The sensor housing **291** is formed to have a substantially triangular cross section, and the human body detection sensor **29** is disposed on a tilted surface facing the back side R. Therefore, the human body detection sensor **29** is disposed so that an apex thereof faces the back side R and the lower side B. This configuration allows the player's legs, which enter the space created on the lower side B of the sub housing portion **21**, to be detected, whereas players passing in front of the gaming machine **1** will not to be mistakenly detected.

In the present embodiment, an infrared sensor can be used, for example, as the human body detection sensor **29**. The infrared sensor is a so-called thermal infrared sensor, and captures a change in temperature of a sensor element due to infrared radiation radiated thereon by a human body and the like, as a change in resistance or a change in a physical phenomenon such as a thermo-electromotive force and a pyroelectric effect, and outputs thereof as an electric signal.

A sensor hole **292** is formed on an extended line from the apex of the human body detection sensor **29**. The sensor hole **292** is formed on a surface on the lower side B of the sub housing portion **21**. Furthermore, the sensor hole **292** is formed in a center in the width direction (L-R**2** direction) of the cabinet **2**, i.e. in a center between Z and Z' (distance between Z and Z' in FIG. **2**). The human body detection sensor **29** detects infrared radiation generated by a human body through the sensor hole **292**.

It should be noted that, in a case where the hopper unit **4** is not provided, the human body detection sensor **29** and the sensor hole **292** can be disposed or formed substantially in a center in the width direction (L-R**2** direction) of the cabinet **2**.

The foot lamp **25** is described hereinafter with reference to FIGS. **8** and **9**.

As shown in FIG. **8**, the cabinet **2** further includes the foot lamp **25** on the front side F of the supporting portion **23**. Furthermore, the foot lamp **25** is disposed on the lower side B of the supporting portion **23**, so that light is emitted toward the lower side B.

As shown in FIG. **9**, the foot lamp **25** is composed of a foot lamp cover **251** and an LED substrate **252**. Screw holes **253** and **253** are formed on the foot lamp cover **251**, through which the foot lamp cover **251** is fixed to the cabinet **2** with screws. The screw holes **253** and **253** are formed in positions corresponding to positions of screw holes **256** and **256** formed in the front side F of the supporting portion **23**. In a case where the foot lamp **25** is attached to the supporting portion **23** and a supporting portion door **231** is closed, the screw holes **253** and **253** are hidden behind the supporting portion door **231**.

Light transmitting holes **254** are formed on the foot lamp cover **251**, through which light from an LED provided on the LED substrate **252** transmits. The LED substrate **252** is disposed so as to align with the light transmitting holes **254**, and mounted with screws to the foot lamp cover **251** by way of mounting bosses **255**.

The foot lamp **25** lights the vicinity of the feet of a player sitting on a chair in front of the gaming machine **1**. On the other hand, when a player is seated, the foot lamp **25** is hidden behind the player and the light thereof is not perceivable from other players passing by the gaming machine **1**. Therefore, a player looking for a vacant gaming machine can find the gaming machine **1** with the light on the lower side B. Furthermore, in the present embodiment, the foot lamp **25** is controlled to be turned off when a player is seated at the front side F of the gaming machine **1**. Details are described later.

In addition, as shown in FIG. **3**, the cabinet illuminating portion **24** is provided on the back side R of the cabinet **2**. The cabinet illuminating portion **24** emits light or switches between modes of illumination in accordance with operation on the operating unit **32** by a player. Change in the cabinet illuminating portion **24** is described later in detail.

Top Door

The top door **3** is described in detail hereinafter with reference to FIGS. **1**, **2**, **10**, and **11**. FIG. **10** is an enlarged view of an operating unit **32**b. FIG. **11** is an enlarged exploded view of the top door **3**, in the vicinity of an arm rest **35**. FIG. **12** is an enlarged exploded view of the top door **3**, in the vicinity of a cover member **38**.

As shown in FIG. **1**, the top door **3** is disposed so as to cover the upper face of the cabinet **2**, in a state of being tilted toward the front side F that is a front face of the gaming machine **1**. In addition, the operating unit **32**, the coin slot **33**, the bill slot **34**, and the arm rest **35** are disposed on the top door **3**. On a reverse side of the top door **3**, the coin sensor **41** is disposed in a position corresponding to the coin slot **33**. In other words, the top door is provided with various devices such as devices that operate based on a signal from the control unit and devices that transmit a signal to the control unit. The devices are all connected to the main control unit **221** including the microcomputer **65**, via the relay board unit **221** (the relay circuit **70**) that is a relay portion.

The main display **31** is disposed on the upper side T of the top door **3** and occupies a majority of a surface thereof. In addition, since the top door **3** is disposed in the state of being tilted toward the front side F of the cabinet **2**, the main display **31**, which is disposed on the upper side T of the top door **3**, is also disposed in the state of being tilted toward the front side F that is the front face of the gaming machine **1**. The main display **31** displays images associated with the games. The main display **31** is preferably formed to have an aspect ratio at which a length in the horizontal direction (the L-R**2** direction in the present embodiment) is greater than a length in the vertical direction (the F-R direction in the present embodiment). In other words, a so-called wide display that is long in the longitudinal direction thereof, which is a width direction (L-R**2** direction) of the gaming machine **1**, is preferable.

The operating unit **32** is disposed to be adjacent to the main display **31**. In the present embodiment, the operating unit **32** is disposed on the front side F of the main display **31**. A player performs operations necessary for the games executed by the gaming machine **1** via the operating unit **32**. The operating unit **32** shown in FIGS. **1** and **2** has a plurality of keys **321**, to which functions for the games executed by the gaming machine **1** are assigned.

Furthermore, the operating unit **32** is configured as a single module, which is exchangeable in accordance with the games executed by the gaming machine **1**. An example of the operating unit **32** is an operating unit **32**b shown in FIG. **10**.

The operating unit **32**b is an operating unit for the gaming machine **1** executing a dice game called Sic Bo. The operating unit **32**b for Sic Bo is provided with a roll button **323** for rolling dice, a notification lamp disposed so as to enclose the roll button **323**, and a bet button **325** for making a bet, on the right side R**2** of an operating unit main body

322. In addition, the operating unit 32b is connected to the relay board unit 211 of the gaming machine 1 by means of a connector 326.

The roll button 323 is operated in a Sic Bo game for shuffling dice after making a bet on the number of spots and a combination of spots on the rolled dice as a random number generator (in other words, after generating random numbers). Shuffle of the dice can be performed using virtual dice displayed on the main display 31 or using real dice by means of a dice unit (not shown) provided besides the gaming machine 1. As used herein, the dice unit includes a plurality of dice and a device for rolling dice.

The notification lamp 324 notifies that a player can roll the dice by operating the roll button 323. More specifically, the notification lamp 324 lights when a player can start rolling the dice after making a bet. In addition, in a case where a game is executed in coordination with the dice unit and a plurality of gaming machines 1, after that bets are made by the plurality of gaming machines 1, a player having a right to roll the dice is selected by a dealer or a server managing the game. Thereafter, when the player can start rolling the dice, only the notification lamp 324 on the gaming machine 1 operated by the selected player lights. A flow of the processing is described later.

Returning to FIG. 1, a sound sensor 36 is provided on both sides of the operating unit 32. The sound sensor 36 recognizes the voice of a player. The sound sensor 36 is connected to the microcomputer 65 via the relay circuit 70 in the relay board unit 211. The sound sensor 36 is disposed below a plurality of small holes formed on a surface of the top door 3.

In addition, an arm rest 35 is provided on the front side F of the operating unit 32. The arm rest 35 is a projecting portion provided so as to project toward the front side F of the cabinet 2 with the top door 3 being closed, and an end portion thereof on the front side F is an end portion on the front side F of the top door 3. The end portion thereof has a concave portion 354 that is slightly hollow toward the main display 31 and centered substantially at a center in the width direction (L-R2 direction).

The player information display portion 27, which is provided on the lower side B of the concave portion 354 formed on the arm rest 35, allows a player to visually recognize a display content of the player information display portion 27 by inhibiting the arm rest 35 from blocking the player's view.

The arm rest 35 includes an arm rest illuminating portion 37. Light from the arm rest illuminating portion 37 can be visually recognized from a side of an end on the front side F of the arm rest 35.

Referring to FIG. 11, the arm rest 35 is composed of arm rest covers 351 and 352 constituting a surface of the arm rest 35 and an arm rest base 353 constituting a face on the lower side B of the arm rest 35. In addition, the arm rest illuminating portion 37 is disposed between the arm rest covers 351 and 352 and the arm rest base 353.

The arm rest illuminating portion 37 is composed of a light guiding plate 371 and an LED 372. The LED 372 is disposed along a face of the arm rest base 353 to the side of the operating unit 32, so that light therefrom is directed toward the front face F.

The light guiding plate 371 is formed in a plate-like shape and disposed so as to cover an entire face of the arm rest base 353 on the upper side T. In addition, the light guiding plate 371 is disposed on the front side F of the LED 372 so that an end face thereof faces the LED 372. Then, the light guiding plate 371 surface-emits light, by dispersing point-like light of the LED 372, introduced from the end face thereof, to the entire light guiding plate 371.

The arm rest covers 351 and 352 are disposed on the upper side T of the light guiding plate 371. The light guiding plate is disposed between the arm rest covers 351 and 352 and the arm rest base 353, and only an end face thereof is visually recognizable. When viewed from the front side F of the gaming machine 1, light from the arm rest illuminating portion 37 can be visually recognized in a linear shape on a side to the front side F of the arm rest 35.

Referring to FIGS. 1, 2 and 12, a cover member 38 is provided on each side in the width direction (L-R2 direction) of the top door 3. In the present embodiment, the cover member 38 is provided so as to cover an entirety of each side in the width direction (L-R2 direction) of the top door 3 (see FIGS. 1 and 2). The cover member 38 is formed so that a shape of a lower end thereof follows a shape of the opening portion 20 of the cabinet 2 when the top door 3 is closed. In addition, the cover member 38 is formed so as to become gradually longer in the vertical direction (T-B direction) from the back side R to the front side F. The front side F of the cover member 38 is formed so as to cover a side of a portion in the sub housing portion 21 of the cabinet 2, in which the player information display portion 27 and the card slot 26 are disposed.

As shown in FIG. 12, the cover member 38 has a three-layered structure including an outer cover 381 disposed on an outermost side, an inner cover 382 disposed on an inner side, and an intermediate cover 383 disposed between the outer cover 381 and the inner cover 382. The intermediate cover 383 is disposed so as to mainly cover an upper side T half of the inner cover 382. An LED portion 384 is disposed on the lower side B of the intermediate cover 383, between the outer cover 381 and the inner cover 382.

The outer cover 381 and the inner cover 382 are members having sufficient stiffness to reinforce the top door 3, and can be formed of the same member or different members. The intermediate cover 383 is disposed on the upper side T of the LED portion 384, around the LED portion. The outer cover 381, disposed to cover the LED portion 384, is preferably made of a member through which light from the LED portion 384 can be visually recognized, such as a translucent member and a transparent member.

The LED portion is connected to the relay circuit 70 of the relay board unit 211. In addition, the LED portion 384 is connected to the microcomputer of the main control unit via the relay board unit 221. The LED portion 384 has various illuminating modes such as lighting-up, blinking, switching off, and the like, in accordance with a control signal from the CPU 61, as one rendered effect for games executed by the gaming machine 1.

It should be noted that, although FIG. 12 shows an exploded view of the cover member 38 on the right side R2, the cover member 38 on the left L is similarly configured.

Returning to FIGS. 1 and 2, an uneven portion 28 is formed on an end on the upper side T of the right lateral face 202, the right end face 203, the left lateral face 204, and the left end face 205 of the cabinet 2. The uneven portion 28 includes: a bottom portion 281 that is formed to be substantially horizontal to the bottom face of the cover member 38 in a case where the top door 3 is closed, and a wall portion 282 formed in the vertical direction from the bottom portion 281 toward the upper side T on an end, toward the inside of the cabinet 2, of the bottom portion 281 (see FIG. 2).

The length in the width direction (L-R2 direction) of the bottom portion 281 is at least a length of thickness of the cover member 38. In addition, the length preferably has

substantially the same length as that of the length of thickness of the cover member **38**.

When the top door **3** is in a state of being closed, the cover member **38** is in contact with the bottom portion **281** of the uneven portion **28** (see FIG. **1**). Furthermore, the right lateral face **202**, the right end face **203**, the left lateral face **204** and the left end face **205** are each connected with the cover member **38**, thereby forming the lateral face of the cabinet **2**.

By disposing the cover member **38**, the top door **3** can be reinforced. In addition, in a case where the top door **3** is closed, since the cover member **38** contacts the bottom portion **281** of the uneven portion **28** formed on a side to the cabinet **2** and the right lateral face **202**, the right end face **203**, the left lateral face **204** and the left end face **205** are each connected with the cover member **38** and form the lateral face of the cabinet **2**, and although a player having malicious intent may try to force the top door **3** open, a handhold can be eliminated, thereby preventing tampering.

Furthermore, since the uneven portion **28** has a wall portion **282** that is formed in a vertical direction from the bottom portion **281**, in a case where the top door **3** is closed and the cover member **38** and the bottom portion **281** are contacting each other, even if a crowbar or the like is inserted therebetween, the wall portion **282** can block the crowbar. Particularly in the present embodiment, since the width of the bottom portion **281** is substantially the same as the thickness of the cover portion **38**, even if a crowbar or the like is inserted between the cover member **38** and the bottom portion **281**, the crowbar would immediately abut into the wall portion **282** and would not be able to get a supporting point, thereby preventing the top door **3** from being forced open.

The hopper unit **4** and the coin sensor **41** are described hereinafter with reference to FIGS. **13** to **15**. FIG. **13** is a diagram showing a relationship between a coin sensor **41** and a sub housing portion **21** of the cabinet **2** in a case where the top door **3** is opened and closed. FIG. **14** is a partial enlarged view of the vicinity of a coin sensor **41**. FIG. **15** is a cross-sectional view of a hopper unit **4**.

According to FIG. **1**, the coin slot **33** is formed on the upper side T of the top door **3**. In addition, the coin slot **33** is disposed more to the front side F than a center in the thickness direction (F-R direction) of the top door **3**, and more to the back side R than an end on the front side F of the top door **3**. More particularly, the coin slot **33** is disposed on a face of the cabinet **2** where the player information display portion **27** is disposed, more to the back side R than an end on the upper side T.

As shown in FIG. **13**, the coin sensor **41** is disposed on a lower side B (reverse side) of the top door **3**. In addition, the coin sensor **41** is disposed directly below (on the lower side B of) the coin slot **33**. More particularly, as shown in FIG. **14**, the coin slot **33** is disposed so that the coin sensor **41**, which is disposed directly below the coin slot **33**, does not interfere with an upper end (an end on the upper side T) on the front side F of the cabinet **2** when the top door **3** is opened and closed.

More specifically, the coin slot **33** is disposed so that a trajectory P of an end on the lower side B of the coin sensor **41**, which is disposed on the reverse side of the top door **3**, does not interfere with the sub housing portion **21** of the cabinet **2**, when the top door **3** is opened by lifting an end thereof on the front side F and swinging the top door **3** open with an end thereof on the back side R as a rotational axis. In other words, the end on the lower side B of the coin sensor **41** follows a circular path around the end on the back side R of the top door **3**, and the coin sensor **41** is disposed so that the end on the upper side T of the cabinet **2** is positioned outside the circular path. In the present embodiment, the end on the upper side T of the cabinet **2** is the front side F of the opening portion **20** of the sub housing portion **21**.

As a result, in a case where the coin slot **33** is disposed on an end on the front side F of the top door **3**, the coin sensor **41** may interfere with the cabinet **2**; however, as described above, the coin slot is disposed more to the back side R than the end on the upper side T, thereby preventing interference.

As shown in FIG. **14**, the coin sensor **41** is fixed on the top door **3** by a sensor case **411**, at a position corresponding to the coin slot **33** on a lower side B (reverse side) of the top door **3**. In other words, the coin sensor **41** is provided so as to connect with the coin slot **33**. In addition, on an end on the lower side B of the coin sensor **41**, a connection opening **412** is provided for connecting with a guidepath **48** that guides coins having passed through the coin sensor **41** into the hopper unit **4**.

Since the coin sensor **41** is provided in the vicinity of the coin slot **33**, on the reverse side of the top door **3**, there is no need to provide a guidepath between the coin slot **33** and the coin sensor **41**. As a result, the jamming of coins between the coin slot **33** and the coin sensor **41** is eliminated.

FIG. **15** is a cross-sectional view of a hopper unit **4**, showing a positional relationship thereof with respect to the coin sensor **41**. The hopper unit **4** is disposed on a straight line that extends from the coin sensor **41** in a direction of gravitational force. In addition, the guidepath **48** to the hopper unit **4** is disposed directly below the connection opening **412**, which is the lower end side of the coin sensor **41**.

The guidepath **48** is disposed directly below the connection opening **412** of the coin sensor **41**, i.e. on a straight line that extends from the coin slot **33** in the direction of gravitational force. Furthermore, the guidepath **48** is formed in a shape of a straight line or a polygonal line and connected with a coin tank **451** in the hopper device **45**. The coin tank **451** retains coins inserted from the coin slot **33** and having passed through the coin sensor **41** and the guidepath **48**.

As described above, the guide path **48** being formed in a form of a straight line can prevent the coins from being jammed in the guide path **48**.

A length in the width direction (L-R**2** direction) of the hopper unit **4** preferably corresponds to a size of the main display **31**. In other words, the main display **31** is formed to have an aspect ratio greater than 4 to 3. Accordingly, the length in the width direction (L-R**2** direction) of the hopper unit **4** is preferably formed in accordance with an increase in size of the main display **31**, from a case of an aspect ratio of 4 to 3. In the present embodiment, the main display **31** has an aspect ratio of 16:9, and is longer in the width direction (L-R**2** direction) than in a case of an aspect ratio of 4 to 3. In addition, the length in the width direction (L-R**2** direction) of the hopper unit **4** is determined in accordance with a growth in length in the width direction (L-R**2** direction) of the main display **31**. It should be noted that, although the hopper unit **4** is thinner than a conventional hopper unit, a size thereof in the thickness direction (F-R direction) reaches the front side F of the cabinet **2** as shown in FIGS. **1** and **2**, and thus an amount of retained coins therein is the same as a conventional hopper unit.

The application unit **5** is described hereinafter with reference to FIG. **16**. FIG. **16** is an enlarged exploded view of the vicinity of an application unit **5** disposed on a back face side R of the cabinet **2**.

In the present embodiment, the application unit **5** is disposed on the back side R of the cabinet **2**. The application unit **5** is formed to be attachable/detachable with respect to the cabinet **2** by means of a screw or the like (not shown), in consideration of maintainability, and connected to the relay board unit **211** of the cabinet **2** by means of a connector (not shown) extended from the application unit **5**, via a connection hole **54** formed on the cabinet **2**.

In addition, the application unit **5** is disposed on the upper side T of the cabinet **2**. Furthermore, the application unit **5** is disposed in an end portion on the back side R on the upper face of the cabinet **2**, along the width direction (L-R**2** direction). The application unit **5** is set between a supportive plate **55** provided in the end portion on the back side R of the cabinet **2** and a supportive projection **56** provided so as to face the supportive plate **55**. It should be noted that the supportive plate **55** and the supportive projection **56** are both formed to be horizontally long along the width direction (L-R**2** direction) of the cabinet **2**, and a length of a gap between the supportive plate **55** and the supportive projection **56** preferably corresponds to a length of the application unit **5** in the thickness direction (F-R direction).

The connector, as a connection portion for connecting a cable extending from the application unit **5**, is preferably provided to the connection hole **54**. This facilitates replacement of the application unit **5**.

The application unit **5** is formed to be horizontally long along the width direction (L-R**2** direction) of the cabinet **2**, and includes the speaker **51** and the lamp portion **52** in the present embodiment. The speaker **51** is provided on both ends of the application unit **5**, and the lamp portion **52** is provided between the two speakers **51**. The speaker **51** and the lamp portion **52** emit sound or light in response to a control signal from the microcomputer **65**. It should be noted that, in addition to the speaker **51** and the lamp portion **52**, various devices can be installed on the application unit **5**. For example, a sub display that is different from the main display **31** can be installed thereon in order to execute a game on two windows or to display information regarding a game on the sub display on the application unit **5**. In addition, coloring of the application unit **5** can be changed in accordance with the design of a casino hall and the like.

Control Flow

A flow of processing by the gaming machine **1** is described hereinafter with reference to FIGS. **17** and **18**. FIG. **17** is a diagram showing a main flow. FIG. **18** is a diagram showing a flow of the operating unit during game execution when performing Sic Bo.

Control of the main flow is described with reference to FIG. **17**.

First, a CPU **61** of the gaming machine **1** illuminates the foot lamp **25** and the arm rest illuminating portion **37** (Step S**1**), and advances the processing to Step S**2**.

In Step S**2**, the CPU **61** determines whether the human body detection sensor **29** has detected a human body. In a case where the human body detection sensor **29** has detected a human body (in a case ofYES determination), the processing is advanced to Step S**3**. In a case where the human body detection sensor **29** has not detected a human body (in a case of NO determination), the CPU **61** stands by.

In Step S**3**, the CPU **61** turns off the foot lamp **25** and the arm rest illuminating portion **37**, and advances the processing to Step S**4**. As described above, the foot lamp **25** and the arm rest illuminating portion **37** are turned off when the human body detection sensor **29** responds (detects a human body) and are turned on when the human body detection sensor **29** does not respond (does not detect a human body).

In Step S**4**, the CPU **61** outputs a predetermined question from the speaker **51**. The question is for confirming the use of the gaming machine **1**, for example, "Would you like to play a game?" More specifically, the CPU **61** reads audio data stored in the ROM **63** and outputs the audio data from the speakers **51** of the application unit **5**. When the processing is terminated, the CPU **61** advances the processing to Step S**5**.

In Step SS, the CPU **61** determines whether a player has responded or not. More specifically, the sound sensor **36** provided on the top door **3** detects sound, and the CPU **61** analyzes the sound to determine whether the sound is a predetermined response or not. In a case where the sound is the predetermined response (in a case ofYES determination), the processing is advanced to Step S**6**. In a case where the sound sensor does not detect sound or the sound is not the predetermined response (in a case of NO determination), the processing is advanced to Step S**2**.

In Step S**6**, the CPU **61** displays a game window on the main display **31**. Here, the game window is, for example, an image for accepting a bet and the like. In addition, in Step S**7**, the CPU **61** determines whether a bet is accepted or not. In a case where a bet is accepted (in a case ofYES determination), the processing is advanced to Step S**8**. In a case where a bet is not accepted (in a case of NO determination), the CPU **61** stands by.

In Step S**8**, the CPU **61** switches between modes of illumination of the cabinet illuminating portion **24**. The mode of illumination is required to be changed from the mode before the bet is made. For example, a change in modes is a change of light color, blinking, turning off or on of the light, and the like. In a case where the gaming machine **1** is installed in a semicircular arrangement or the like around a dealer, the dealer can recognize bets being made by the change in modes of illumination.

In Step S**9**, the CPU **61** starts executing a game. In Step S**10**, the CPU **61** determines whether the game is terminated or not. The LED portion **384** provided on both sides **2** of the top door **3** switches between the modes of illumination in accordance with a control signal from the CPU **61**. In other words, a mode of light emitted by the LED portion **384** is changed (change in colors, turning on and off, blinking and the like). As used herein, the game is a unit in which a bet can be made. In a case where the game is terminated (in a case of YES determination), the CPU **61** advances the processing to Step S**11**, and in a case where the game is not terminated (in a case of NO determination), the CPU **61** continues executing the game until termination.

In Step S**11**, the CPU **61** performs payout of coins as necessary, and advances the processing to Step S**12**. In Step S**12**, the CPU **61** returns the mode of light of the cabinet illuminating portion **24**.

In Step S**13**, the CPU **61** determines whether the human body detection sensor **29** is responding or not. In a case where the human body detection sensor **29** is responding and detecting a human body (in a case of YES determination), the processing is advanced to Step S**6**. On the other hand, in a case where the human body detection sensor **29** is not responding and not detecting a human body (in a case of NO determination), the processing is advanced to Step S**14**. In a case where the human body detection sensor **29** is detecting a human body even after the termination of the game, the player using the gaming machine **1** is considered to be willing to continue the game. Therefore, the CPU **61** can continue the game without returning to Step S**4** for outputting the question from the speakers **51**.

In Step S14, the CPU 61 terminates execution of the game and displays a demonstration screen on the main display 31. Since the human body detection sensor 29 does not detect a human body, a player is assumed to be away from the gaming machine 1. Therefore, the CPU 61 terminates the game and displays the demonstration screen. Upon finishing the processing, the CPU 61 terminates the flow.

Operation during execution of a Sic Bo game is described hereinafter with reference to FIG. 18. It should be noted that a flow shown in FIG. 18 is for a case where an operating unit 32b for a Sic Bo game is installed in the cabinet 2 as the operating unit 32. In addition, a die and a unit for rolling the die (hereinafter referred to as a dice unit) are assumed to be provided separately from the gaming machine 1.

In Step S21, the CPU 61 determines whether it is time to roll the die or not. More specifically, the CPU 61 determines whether a bet operation is terminated or not. In addition, in a case where a plurality of gaming machines 1 executes a game simultaneously, the CPU 61 determines whether the bet operation by all the players participating in the game is terminated or not. In addition, in a case where a plurality of gaming machines 1 executes a game simultaneously, the CPU 61 determines whether all the players participating in the game have terminated the bet operation.

In Step S22, the CPU 61 determines whether the player has the right to roll the die. Whether the player has the right to roll the die is determined by whether a predetermined condition is satisfied. In a case where the player has the right to roll the die (in a case of a YES determination), the processing is advanced to Step S23, and in a case where the player does not have the right to roll the die (in a case of a NO determination), the flow is terminated.

Here, the predetermined condition can be, for example, a player randomly selected from among players having bet at least a predetermined amount, a player having bet a maximum amount, a player having bet a maximum accumulated bet amount, a player completely randomly determined, a player having lost or won a large amount, and the like.

In Step S23, the CPU 61 illuminates the notification lamp 324 on the operating unit 32b. This notifies a player that the roll button 323 can be operated to start rolling the die. In addition, in a case where a plurality of gaming machines 1 executes a game simultaneously, the notification lamp 324 is turned on only for the gaming machine 1 used by a player having the right to roll the die in Step S22. By granting a right to roll the die to a player, the player can decide when to start rolling the die.

In Step S24, the CPU 61 determines whether the roll button 323 is operated or not. In a case where the roll button 323 is not operated (in a case of a YES determination), the CPU 61 advances the processing to Step S25, and in a case where the roll button 323 is not operated (in a case of a NO determination), the CPU 61 stands by.

In Step S25, the CPU 61 submits a signal to start rolling the die to the dice unit and turns off the notification lamp 324. Upon finishing the processing, the CPU 61 terminates the flow.

According to the present embodiment, for the case of detecting a player intending to operate the gaming machine 1, the human body detection sensor 29 provided on the lower side B of the sub housing portion 21 detects a human body, the speakers 51 output a question in response to a detection by the human body detection sensor 29, and then the sound sensor 36 detects a voice of the player, determines whether the voice is a predetermined sentence corresponding to an answer to the question by analyzing the voice, and recognizes the sentence. In this way, even if the human body detection sensor 29 responds to an object other than a human body (a player), game will not start without the predetermined sentence being recognized by the sound sensor 36. This can prevent the gaming machine 1 from executing a game when a player is not operating the gaming machine 1.

While an embodiment of the gaming machine according to the present invention has been described, it is to be understood that the above description is intended to be illustrative, and not restrictive, and any changes in design may be made to specific configurations such as various means. Moreover, it should be understood that the advantages described in association with the embodiments are merely a listing of most preferred advantages, and that the advantages of the present invention are by no means restricted to those described in connection with the embodiments.

In the present embodiment, the card identification circuit 73 as the reader portion reads information stored in the player card inserted into the card slot 26, and a play history of the player is displayed on the player information display portion 27; however, the present invention is not limited thereto. For example, various gaming machines 1 in a game hall can be connected by a network and, in a case where a player card is inserted into the card slot 26, a play history corresponding to the player card can be read from a server and displayed on the player information display portion 27.

In the present embodiment, the foot lamp 25 and the arm rest illuminating portion 37 are turned on when the human body detection sensor 29 is not responding, and the foot lamp 25 and the arm rest illuminating portion 37 are turned off when the human body detection sensor 29 is responding; however, the present invention is not limited thereto. For example, the foot lamp 25 and the arm rest illuminating portion 37 can be turned on even when the human body detection sensor 29 is responding. In addition, the LED portion 384 on the cover member 38 can be similarly turned on and off. In a case where a player is seated at the front side F of the gaming machine 1, the light emitted from the foot lamp 25 and the arm rest illuminating portion 37 are hidden behind the player, thus providing the same effect as the abovementioned embodiment without a particular operation.

Embodiments of the present invention will be described below with reference to the accompanying drawings.

As described later in detail, as shown in FIG. 1A, the CPU 81 receives identification data from an IC tag reader 16 (Step S100), determines a classification and number of dots on dice based on the identification data thus received (Step S200), stores the classification and the number of dots on the dice thus determined for each game in RAM 83 (Step S300), calculates a frequency at which each of the dots appears over a predetermined number of games (for example, 100 games) for each classification of the dice (Step S400), and displays, in a case in which the frequency of a specific number of dots on a specific die is at least a predetermined number (Step S500), an indication thereof on the dealer used display 210.

FIG. 2A is a perspective view schematically showing an example of a gaming machine according to the embodiment of this invention. FIG. 3A is an enlarged view of a playing unit of the gaming machine shown in FIG. 2A. As shown in FIG. 2A, a gaming machine 1 according to the present embodiment includes a housing 2 as a main body portion, a playing unit 3 that is provided substantially at the center of the top face of the housing 2 and in which a plurality of dice 70 are rolled and stopped, a plurality of stations 4 disposed so as to surround the playing unit 3, and a dealer used display 210 that is positioned so as not to be visually recognizable by a player seated at each station 4. The station

4 includes an image display unit 7. The player seated at each station 4 can participate in a game by predicting numbers of dots on the dice 70 and performing a normal bet input and a side bet input.

The gaming machine 1 includes a housing 2 as a main body portion, a playing unit 3 that is provided substantially at the center of the top face of the housing 2 and in which a plurality of dice 70 are rolled and stopped, and a plurality of stations 4 (ten in this embodiment) disposed so as to surround the playing unit 3.

The station 4 include a game media receiving device 5 into which game media such as medals to be used for playing the game are inserted, a control unit 6, which is configured with multiple control buttons by which a player enters predetermined instructions, and an image display unit 7, which displays images relating to a bet table. The player may participate in a game by operating the control unit 6 or the like while viewing the image displayed on the image display unit 7.

A payout opening 8, from which a player's game media are paid out, are provided on the sides of the housing 2 on which each station 4 is provided. In addition, a speaker 9, which can output sound, is disposed on the upper right of the image display unit 7 on each of the stations 4.

A control unit 6 is provided on the side part of the image display unit 7 on each of the stations 4. As viewed from a position facing the station 4, in order from the left side are provided a select button 30, a payout (cash-out) button 31, and a help button 32.

The select button 30 is a button that is pressed when confirming a bet operation after the bet operation is complete. Furthermore, in a case other than the bet operation, the button is pressed when a player confirms an input performed.

The payout button 31 is a button which is usually pressed at the end of a game, and when the payout button 31 is pressed, game media corresponding to credits that the player has acquired is paid out from the payout opening 8.

The help button 32 is a button that is pressed in a case where a method of operating the game is unclear, and upon the help button 32 being pressed, a help screen showing various kinds of operation information is displayed immediately thereafter on the image display unit 7.

The playing unit 3 is configured so as to allow a plurality of dice to roll and stop. The present embodiment is configured to use three dice 70 (dice 70a, 70b, and 70c) at the playing unit 3.

A speaker 221 and a lamp 222 are disposed around the playing unit 3. The speaker 221 performs rendered effects by outputting sounds while the dice 70 are being rolled. The lamp 222 performs rendered effects by emitting lights while the dice 70 are being rolled.

The playing unit 3 includes a playing board 3a, which is formed to be a circular shape, to roll and then stop the dice 70. An IC tag reader 16, which is described later in FIGS. 6A to 9A, are provided below the playing board 3a.

Since the playing board 3a is formed to be substantially planar, as shown in FIG. 3A, the dice 70 are rolled by oscillating the playing board 3a substantially in the vertical direction with respect to the horizontal direction of the playing board 3a. Then, the dice 70 are stopped after the oscillation of the playing board 3a ceases. The playing board 3a is oscillated by a CPU 81 (described later) driving an oscillating motor 300.

Furthermore, as shown in FIG. 3A, the playing unit 3 is covered with a cover member 12 of which the entire upper area is made of a transparent acrylic material formed in a hemispherical shape, and regulates the rolling area of the dice 70. In the present embodiment, an infrared camera 15 is provided at the top of the cover member 12 to detect numbers of dots and the like (such as positions of the dice 70 on the playing board 3a, types of the dice 70, and numbers of dots of the dice 70) of the dice 70. Furthermore, the cover member 12 is covered with a special film (not shown) which blocks infrared radiation. In this way when the numbers of dots of the dice 70 on which an infrared absorption ink has been applied is detected with the infrared camera 15, false detection can be prevented that arises, for example, in a case where a blink rate of a light irradiated from a circumference of the playing unit 3 is fast.

FIG. 4A is an external perspective view of a die 70. As shown in FIG. 4A, the die 70 is a cube of which the length of a side is 100 mm.

FIG. 5A is a development view of the die 70. As shown in FIG. 5A, the combinations of two faces opposing each other are "1 and 6", "2 and 5", and "3 and 4".

FIGS. 6A to 9A show IC tag readable areas by an IC tag reader 16 disposed below the playing board 3a.

Here, a way of reading information stored in the IC tag by the IC tag reader 16 is described below.

The IC tag reader 16 is a non-contact type IC tag reader. For example, it is possible to read information stored in the IC tag by RFID (Radio Frequency Identification). The RFID system performs near field communication that reads and writes data stored in semi-conductor devices by an induction field or radio waves in a non-contact manner. In addition, since this technology is known conventionally and is described in Japanese Unexamined Patent Application Publication No. H8-21875, an explanation thereof is abbreviated.

In the present embodiment, a plurality of IC tags is read by a single IC tag reader 16. Under the abovementioned RFID system, an anti-collision function can be employed which can read a plurality of IC tags by a single reader. The anti-collision function includes FIFO (first in first out) type, multi-access type, and selective type, and communicates with a plurality of the IC tags sequentially. The FIFO type is a mode to communicate with a plurality of the IC tags sequentially in the order that each IC tag enters an area in which an antenna can communicate therewith. The multi-access type is a mode that is able to communicate with all the IC tags, even if there is a plurality of the IC tags simultaneously in the area in which an antenna can communicate with the IC tags. The selective type is a mode that is able to communicate with a specific IC tag among a plurality of the IC tags in the area in which an antenna can communicate therewith. By employing the abovementioned modes, it is possible to read a plurality of the IC tags with a single IC tag reader. In addition, reading the IC tags may not only be done by the non-contact type, but also a contact type. In addition, the IC tag reader is not limited thereto, and anything that is appropriately designed with the object of being read may be employed.

In the present embodiment, a readable area of the IC tag reader 16 is 10 mm in substantially a vertical direction from substantially an entire horizontal face on the playing board 3a.

With reference to FIG. 6A, a face of the die 70 (for example, a face of which the number of dots is six) is in contact with the playing board 3a. Furthermore, the IC tag is embedded substantially at the center of each face of the die 70 (the IC tags for the faces on which the numbers of dots are "3" and "4" are not shown). An IC tag 51 is embedded substantially at the center of a face on which the

number of dots is six. An IC tag **52** is embedded substantially at the center of a face on which the number of dots are five. An IC tag **53** is embedded substantially at the center of a face on which the number of dots is one. An IC tag **54** is embedded substantially at the center of a face on which the number of dots is two.

Here, only the IC tag **51** exists in the readable area of the IC tag reader **16**. Therefore, the number of dots (in this case, "one") of a face, opposing the face on which the IC tag **51** is embedded, is determined as the number of dots of the die **70**.

Furthermore, since the number of dots of a face, opposing a face on which an IC tag is embedded, is determined as the number of dots of the die **70**, "one" is stored, as data of the number of dots, in the IC tag **51** on the face of which the number of dots is "six". "Two" is stored, as data of the number of dots, in the IC tag **52** on the face of which the number of dots is "five". "Six" is stored, as data of the number of dots, in the IC tag **53** on the face of which the number of dots is "one". "Five" is stored, as data of the number of dots, in the IC tag **54** on the face of which the number of dots is "two". "Three" is stored, as data of the number of dots, in the IC tag (not shown) on the face of which the number of dots is "four". Finally, "four" is stored, as data of the number of dots, in the IC tag (not shown) on the face of which the number of dots is "three".

Furthermore, as described above, since a side of the die **70** is 10 mm, it is not physically possible for an IC tag reader **16** to detect more than one IC tag with respect to one die.

With reference to FIG. **7**A, a die **70** is inclined. However, since the IC tag **51** still exists in the readable area of the IC tag reader **16**, the number of dots of the die **70** is determined as "one".

With respect to FIG. **8**A, the die **70** is inclined at a greater angle than the case shown in FIG. **7**A. Then, since there is no IC tag which exists in the readable area of the IC tag reader **16**, the IC tag reader **16** cannot detect the number of dots of the die **70**.

With reference to FIG. **9**A, the die **70**b is superimposed on the die **70**a. In this case, neither of the IC tags **55**, **56**, **57**, and **58**, which are embedded in the die **70**b, exists in the readable area of the IC tag reader **16**. Therefore, in this case, the IC tag reader **16** cannot detect the number of dots of the die **70**b.

FIG. **10**A shows a sheet **140** attached to each face of the die **70**.

As shown in FIG. **10**A, on each face of the die **70**, the sheet **140**, to which infrared absorption ink is applied to identify the number of dots and the type of the die **70**, is provided so as to be covered by a sheet on which the number of dots is printed. According to FIG. **10**A, the infrared absorption ink can be applied to dots **181**, **182**, **183**, **184**, **185**, **186**, and **187**.

The number of dots of the die **70** can be identified by a combination of the dots to which the infrared absorption ink is applied among the dots **184**, **185**, **186**, and **187**. In addition, the type of the die **70** can be identified by a combination of the dots to which the infrared absorption ink is applied among the dots **181**, **182**, and **183**.

FIG. **11**A shows an image in which the dice **70**, which comes to rest on the playing board **3**a, are imaged substantially in the vertically upward direction using an infrared camera **15**.

With reference to FIG. **11**A, dots to which the infrared absorption ink is applied on each of the dice **70**a, **70**b, and **70**c are imaged in black. The type and the number of dots for each of the dice **70**a, **70**b, and **70**c are determined based on a combination of the dots to which the ink is applied. In addition, the playing board **3**a is formed in a disc shape having a radius a, and each position of the dice **70**a, **70**b, and **70**c is detected as an x component and y component on an x-y coordinate.

FIG. **12**A shows a sheet **150** which is attached to each face of the dice **70**.

As shown in FIG. **12**A, a circular profile **75** having a certain area on each face of the dice **70** in common is depicted by way of applying the infrared absorption ink on each face of the dice **70**. The sheet **150** on which the circular profile **75** is depicted is provided so as to be covered by the abovementioned sheet **140**.

FIG. **13**A shows an image in which the die **70**, which comes to rest at a tilt on a playing board **3**a, is imaged substantially in the vertically upward direction using the infrared camera **15**.

With reference to FIG. **13**A, three faces of the die **70** are imaged. Therefore, it is necessary to distinguish the number of dots of which face is correct. Consequently, the number of dots having the largest area among the three faces is determined as the face that should be read. In a case of this distinction, the CPU (not shown) in the infrared camera **15** calculates the areas of the circular profiles **75** thus imaged, and distinguishes the number of dots of the face on which the circular profile **75** having the largest area among the areas thus calculated is printed as the correct number of dots.

FIG. **14**A shows an example of a display screen displayed on an image display unit. As shown in FIG. **14**A, an image display unit **7** is a touch-panel type of liquid crystal display, on the front surface of which a touch panel **35** is attached, allowing a player to perform selection such as of icons displayed on a liquid crystal screen **36** by contacting the touch panel **35**, e.g., with a finger.

A table-type betting board (a bet screen) **40** for predicting the number of dots of the dice **70** is displayed in a game at a predetermined timing on the image display unit **7**.

A detailed description is now provided regarding the bet screen **40**. On the bet screen **40** are displayed a plurality of normal bet areas **41** and a side bet area **42**. The plurality of normal bet areas **41** includes a normal bet area **41**A, a normal bet area **41**B, a normal bet area **41**C, a normal bet area **41**D, a normal bet area **41**E, a normal bet area **41**F, a normal bet area **41**G, and a normal bet area **41**H. By contacting the touch panel **35**, e.g., with a finger, the normal bet area **41** is designated, and by displaying chips in the normal bet area **41** thus designated, a normal bet operation is performed. Furthermore, by contacting the touch panel **35**, e.g., with a finger, the side bet area **42** is designated, and by displaying chips in the side bet area **42** thus designated, a side bet operation is performed.

A unit bet button **43**, a re-bet button **43**E, a payout result display unit **45**, and a credit amount display unit **46** are displayed at the right side of the side bet area **42** in order from the left side.

The unit bet button unit **43** is a group of buttons that are used by a player to bet chips on the normal bet area **41** and the side bet area **42** designated by the player. The unit bet button unit **43** is configured with four types of buttons including a 1 bet button **43**A, a 5 bet button **43**B, a 10 bet button **43**C, and a 100 bet button **43**D. It should be noted that in the case of an incorrect bet operation, the player can start a bet operation again by touching a re-bet button **43**E.

Firstly, the player designates the normal bet area **41** or the side bet area **42** using a cursor **47** by way of contacting the touch panel **35**, e.g., with a finger. At this time, contacting the 1 bet button **43**A, e.g., with a finger, allows for betting one chip at a time (number of chips to be bet increases one

by one in the order of 1, 2, 3, every time the 1 bet button **43**A is contacted, e.g., by a finger). Similarly, when contacting the 5 bet button **43**B, e.g., with a finger, five chips at a time can be bet (number of chips to be bet increases five by five in the order of 5, 10, 15, every time the 5 bet button **43**B is contacted, e.g., by a finger). Similarly, when contacting the 10 bet button **43**C, e.g., with a finger, ten chips at a time can be bet (number of chips to be bet increases ten by ten in the order of 10, 20, 30, every time the 10 bet button **43**C is contacted, e.g., by a finger). Similarly, when contacting the 100 bet button **43**D, e.g., with a finger, a hundred chips at a time can be bet (number of chips to be bet increases hundred by hundred in the order of 100, 200, 300, . . . every time the 100 bet button **43**D is contacted, e.g. by a finger). The number of chips bet up to the current time is displayed as a chip mark **48**, and the number displayed on the chip mark **48** indicates the number of bet chips.

The number of bet chips and payout credit amount for a player in a previous game are displayed in the payout result display unit **45**. The number calculated by subtracting the number of bet chips from the payout credit amount is a newly acquired credit amount for the player in the previous game.

The credit amount display unit **46** displays the credit amount which the player possesses. The credit amount decreases according to the number of bet chips (1 credit amount for 1 chip) when the player bets chips. If the bet chips are entitled to an award and credits are paid out, the credit amount increases in accordance with the number of paid out chips. It should be noted that the game is over when the player's credit amount becomes zero.

The normal bet area **41** in the bet screen **40** is described next. The normal bet areas **41**A and **41**B are portions where the player places a bet on a predicted sum of dots appearing on the dice **70**A to **70**C. In other words, the player selects the normal bet area **41**A if the predicted sum falls in a range of 4 to 10, or the normal bet area **41**B if the predicted sum falls in a range of 11 to 17. Odds are set to 1:1 (2 chips are paid out for 1 chip bet).

The normal bet area **41**C is a portion where the player places a bet, predicting that two dice **70** have the same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1), (2, 2), (3, 3), (4, 4), (5, 5), and (6, 6), and the odds are set to 1:10.

The normal bet area **41**D is a portion where the player places a bet, predicting that all three dice have the same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), and (6, 6, 6), and the odds are set to 1:30.

The bet area **41**E is a portion where the player places a bet on a predicted number of dots appearing commonly on all three dice. In other words, the player places a bet on one of the combinations of (1, 1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), or (6, 6, 6), and the odds are set to 1:180.

The normal bet area **41**F is where the player places a bet, predicting a total, a summation of dots appearing on the three dice. Odds are set according to the occurrence frequency of the total. For example, if the total is 4 or 17, odds are set to 1:60; if the total is 5 or 16, odds are set to 1:30; if the total is 6 or 15, odds are set to 1:18; if the total is 7 or 14, odds are set to 1:12; if the total is 8 or 13, odds are set to 1:8; if the total is 9 or 12, odds are set to 1:7; and if the total is 10 or 11, odds are set to 1:6.

The bet area **41**G is a portion where the player places a bet on predicted dots appearing on the two dice selected from the three, and the odds are set to 1:5.

The normal bet area **41**H is a region where the player places a bet on the number of dots appearing on the dice **70**, and the odds are set according to the number of dots of the dice **70** matching the predicted number of dots.

FIG. **15**A is a block diagram showing the internal configuration of the gaming machine shown in FIG. **2**A. A main control unit **80** of the gaming machine **1** includes a microcomputer **85**, which is configured with a CPU **81**, ROM **82**, RAM **83**, and a bus **84** that transfers data therebetween.

The CPU **81** is connected with an oscillating motor **300** via an I/O interface **90**. Furthermore, the CPU **81** is connected with a timer **131**, which can measure time via the I/O interface **90**. In addition, the CPU **81** is connected with a lamp **222** via the I/O interface **90**. The lamp **222** emits various colors of light for performing various types of rendered effects, based on output signals from the CPU **81**. Furthermore, the CPU **81** is connected with a speaker **221** via the I/O interface **90** and a sound output circuit **231**. The speaker **221** emits various sound effects for performing various types of rendered effects, based on output signals from the sound output circuit **231**. Furthermore, the I/O interface **90** is connected with the abovementioned infrared camera **15** and/or the IC tag reader **16**, thereby transmitting and receiving information in relation to the number of dots of the three dice **70**, which comes to rest on the playing board **3**a, between the infrared camera **15** and/or the IC tag reader **16**.

Here, the oscillating motor **300**, the infrared camera **15**, the IC tag reader **16**, the lamp **222**, the sound output circuit **231**, and the speaker **221** are provided within a single composite unit **220**.

In addition, via a communication interface **95** connected to the I/O interface **90**, the main control unit **80** transmits and receives data such as bet information, payout information, and the like to and from each station **4**, as well as data such as bet start instruction images, bet start instruction signals, and the like to and from the dealer used display **210**.

Furthermore, the I/O interface **90** is connected with a history display unit **91**, and the main control unit **80** transmits and receives information in relation to the number of dots on the die, to and from the history display unit **90**.

ROM **82** in the main control unit **80** is configured to store a program for implementing basic functions of the gaming machine **1**; more specifically, a program for controlling various devices which drive the playing unit **3**, a program for controlling each station **4**, and the like, as well as a payout table, data indicating a predetermined time T, data indicating a specific value TT, and the like.

RAM **83** is memory, which temporarily stores various types of data calculated by CPU **81**, and, for example, temporarily stores data bet information transmitted from each station **4**, information on respective number of dots that appear on the dice **70** transmitted from the infrared camera **15** and/or the IC tag reader **16**, data relating to the results of processing executed by CPU **81**, and the like. A jackpot storage area is provided in the RAM **83**. In the jackpot storage area, the data indicating the number of playing media stored cumulatively is stored so as to correspond to each number of dots of matching dice. The data is provided to the station **4** at a predetermined timing, and a jackpot image is displayed. The CPU **81** controls the oscillating motor **300**, which oscillates the playing unit **3**, based on data and a program stored in the ROM **82** and the RAM **83**, and oscillates the playing board **3**a of the playing unit **3**. Furthermore, after oscillation of the playing board **3**a ceases, a control processing associated with game progression, such

as confirmation processing for confirming the number of dots on each of the dice **70** resting on the playing board **3**a.

In addition to the control processing described above, the CPU **81** has a function of executing a game by transmitting and receiving data to and from each station **4** so as to control each station **4**. More specifically, the CPU **81** accepts bet information transmitted from each station **4**. Furthermore, the CPU **81** performs win determination processing based on the number of dots on the dice **70** and the bet information transmitted from each station **4**, and calculates the amount of an award paid out in each station **4** with reference to the payout table stored in the ROM **82**.

FIG. **16**A is a block diagram showing the internal configuration of the station shown in FIG. **2**A. The station **4** includes a main body **100** in which an image display unit **7** and the like are provided, and a game media receiving device **5**, which is attached to the main body **100**. The main body **100** further includes a station control unit **110** and several peripheral devices.

The station control unit **110** includes a CPU **111**, ROM **112**, and RAM **113**.

ROM **112** stores a program for implementing basic functions of the station **4**, other various programs needed to control the station **4**, a data table, and the like.

Moreover, a decision button **30**, a payout button **31**, and a help button **32** provided in the control unit **6** are connected to the CPU **111**, respectively. The CPU **111** controls the execution of various corresponding operations in accordance with manipulation signals, which are generated in response to each button pressed by a player. More specifically, the CPU **111** executes various processing, based on input signals transmitted from the control unit **6** in response to a player's operation which has been inputted, and the data and programs stored in the ROM **112** and RAM **113**. Subsequently, the CPU **111** transmits the results to the CPU **81** in the main control unit **80**.

In addition, the CPU **111** in the main control unit **80** receives instruction signals from the CPU **81**, and controls peripheral devices which configure the station **4**. The CPU **111** performs various kinds of processing based upon the input signals supplied from the control unit **6** and the touch panel **35**, and the data and the programs stored in the ROM **112** and the RAM **113**. Then, the CPU **111** controls the peripheral devices which configure the station **4** based on the results of the processing. It should be noted that the mode whereby processing is performed is set for each processing depending on the content of the processing. For example, the former approach is applied to payout processing of game media for respective numbers of dots appearing on the dice, and the latter approach is applied to bet operation processing by a player.

Furthermore, a hopper **114**, which is connected to the CPU **111**, pays out a predetermined amount of game media through the payout opening **8**, receiving the instruction signals from the CPU **111**.

Moreover, the image display unit **7** is connected to the CPU **111** via a liquid crystal driving circuit **120**. The liquid crystal driving circuit **120** includes program ROM, image ROM, an image control CPU, work RAM, a video display processor (VDP), video RAM, and the like. Here, the program ROM stores an image control program with respect to the display functions of the image display unit **7**, and various kinds of selection tables. The image ROM stores dot data for creating an image to be displayed on the image display unit **7**, and dot data for displaying a jackpot image, for example. In addition, the image control CPU determines an image to be displayed on the image display unit **7**, selected from the dot data previously stored in the image ROM according to the image control program previously stored in the program ROM based on parameters specified by the CPU **111**. The work RAM is configured as a temporary storage means when executing the image control program by the image control CPU. The VDP forms an image corresponding to the display contents determined by the image control CPU and outputs the resulting image on the image display unit **7**. It should be noted that the video RAM is configured as a temporary storage device used by the VDP for creating an image.

As mentioned above, the touch panel **35** is attached to the front side of the image display unit **7**, and the information related to operation on the touch panel **35** is transmitted to the CPU **111**. The touch panel **35** detects an input operation by the player on a bet screen **40** and the like more specifically, selection of the normal bet area **41** and the side bet area **42** in the bet screen **40**, manipulation of the bet button unit **43** and the like, are performed by touching the touch panel **35**, and the information thereof is transmitted to the CPU **111**. Then, a player's bet information is stored in the RAM **113** based on the information stored. Furthermore, the bet information is transmitted to the CPU **81** in the main control unit **80**, and stored in a bet information storage area in the RAM **83**.

Moreover, a sound output circuit **126** and a speaker **9** are connected to the CPU **111**. The speaker **9** emits various sound effects for performing various kinds of rendered effects, based on output signals from the sound output circuit **126**. In addition, the game media receiving device **5**, into which game media such as coins or medals are inserted, is connected to the CPU **111** via a data receiving unit **127**. The data receiving unit **127** receives credit signals transmitted from the game media receiving device **5**, and the CPU **111** increases a player's credit amount stored in the RAM **113** based on the credit signals transmitted.

A timer **130**, which can measure time, is connected to the CPU **111**.

A gaming board **60** includes a CPU (Central Processing Unit) **61**, ROM **65** and boot ROM **62**, a card slot **63**S compatible with a memory card **63**, and an IC socket **64**S compatible with a GAL (Generic Array Logic) **64**, which are connected to one another via an internal bus.

The memory card **63** comprises nonvolatile memory such as compact flash (trademark) or the like, which stores a game program and a game system program.

Furthermore, the card slot **63**S has a configuration that allows the memory card **63** to be detachably inserted, and is connected to the CPU **111** via an IDE bus. Such an arrangement allows the kinds or content of the game provided by the station **4** to be changed by performing the following operation. More specifically, the memory card **63** is first extracted from the card slot **63**S, and another game program and another game system program are written to the memory card **63**. Then, the memory card **63** thus rewritten is inserted into the card slot **63**S. In addition, the kinds or content of the games provided by the station **4** can be changed by replacing the memory card **63** storing a game program and a game system program with another memory card **63** storing another game program and game system program. The game program includes a program for advancing a game and the like. The game program also includes a program related to image data and sound data outputted during a game.

The GAL **64** is one type of PLD that has a fixed OR array structure. The GAL **64** includes multiple input ports and output ports and, upon receiving predetermined data via each input port, outputs output data that corresponds to the

input data via the corresponding output port. In addition, an IC socket **64**S has a structure that allows the GAL **64** to be detachably mounted, and is connected to the CPU **111** via the PCI bus.

The CPU **61**, the ROM **65**, and the boot ROM **62**, which are connected to one another via the internal bus, are connected to the CPU **111** via the PCI bus. The PCI bus performs signal transmission between the CPU **111** and the gaming board **60**, as well as supplying electric power from the CPU **111** to the gaming board **60**. The ROM **65** stores country identification information and an authentication program. The boot ROM **62** stores a preliminary authentication program, a program (boot code) which instructs the CPU **61** to start up the preliminary authentication program, etc.

The authentication program is a program (forgery check program) for authenticating the game program and the game system program. The authentication program is defined to follow the procedure (authentication procedure) for confirming and authenticating that the game program and the game system program, which are to be acquired after the authentication, have not been forged, i.e. the procedure for authenticating the game program and the game system program. The preliminary authentication program is a program for authenticating the aforementioned authentication program. The preliminary authentication program is defined to follow the procedure for verifying that the authentication program has not been forged, i.e. the procedure for authenticating the authentication program (authentication procedure).

An instruction image display determination table is described with reference to FIG. **17**A.

In Steps S**11** and S**19** of FIG. **34**A, the instruction image display determination table is referred to by the CPU **81** upon determining whether a bet start instruction image or a bet end instruction image is displayed on the display screen **210**a of the dealer used display **210**.

According to this table, "X" is data for indicating that the bet start instruction image and the like is not displayed on the display screen **210**a, and "O" is data for indicating that the bet start instruction image and the like is displayed on the display screen **210**a. For example, in a case in which a dealer belongs to an intermediate level, the bet start instruction image is not displayed on the display screen **210**a, but the bet end instruction image is displayed on the display screen **210**a. In addition, this table is stored in the ROM **82**.

The bet existence determination table is described with reference to FIG. **18**A.

The CPU **81** refers to this bet existence determination table upon determining for each station **4** whether a bet operation is performed at each station **4** in Step S**31** of FIG. **35**A.

Data indicating whether the bet operation has been performed or not at each station number is stored in this table. "P" is data indicating that a bet operation was performed, and "A" is data indicating that a bet operation was not performed. In addition, this table is updated in every game, and stored in the RAM **83**.

An oscillation mode data table is described with reference to FIG. **19**A.

The CPU **81** refers to this oscillation mode data table upon determining combination patterns of the oscillation modes of the playing board **3**a in Step S**41** of FIG. **36**A. In addition, this table is stored in the ROM **82**.

According to this table, in a case of a pattern **3**, the roll of dice **70** is performed in the order of a small oscillation for six seconds, a large oscillation for four seconds, and a subtle oscillation for five seconds. Here, the order of oscillation amplitude of the playing board **3**a is equal to large oscillation>small oscillation>subtle oscillation. It should be noted that the oscillation speed for the large oscillation, the small oscillation, and the subtle oscillation are all the same speed. Furthermore, the small oscillation is enough to be able to roll a die, the large oscillation is enough to jump a die, and the subtle oscillation is enough to level off a die that comes to rest at a tilt.

A rendered effect table is described with reference to FIG. **20**A.

The CPU **81** refers to this rendered effect table upon determining rendered effect data in response to an oscillation pattern of the playing board **3**a in Step S**43** of FIG. **36**A. In addition, this table is stored in the ROM **82**.

According to this table, oscillation modes correspond to sound types and, for example, in the case of a large oscillation, "sound **2**" is determined. For example, in the case of "sound **2**", the sound indicating that a die jumps is outputted from the speaker **221**.

It should be noted that, by way of associating an oscillation mode with a certain type of emitted light, rendered effects with a light emitting mode associated with an oscillation mode may be performed by lighting or flashing of the lamp **222**.

An IC tag data table is described with reference to FIG. **21**A.

The IC tag data table is a table showing data as identification data **1** to **3** which is created by the CPU **81** based on the results of the type of dice and the number of dots on the dice, when information stored in IC tags embedded in the dice **70**a, **70**b, and **70**c is detected by the IC tag reader **16**.

According to this table, for example, when an IC tag embedded in each die is detected in the order of **70**c, **70**a, and **70**b, by the IC tag reader **16**, the die **70**c is associated with identification data **1** of which the type is "red" and the number of dots is "six", the die **70**a is associated with identification data **2** of which the type is "white" and the number of dots is "three", and the die **70**b is associated with identification data **3** of which the type is "black" and the number of dots is "five".

On the other hand, when three dice are not detected, for example, in a case where only two dice are detected, identification data is created for only 2 sets, identification data **1** and **2**.

In addition, the data table is transmitted from the IC tag reader **16** to the CPU **81**, and then the CPU **81** receives it to analyze the number of dots on a die and the like.

An infrared camera imaging data table is described with reference to FIG. **22**A.

The infrared camera imaging data table is a data table showing dot patterns of the infrared absorption inks applied to the dice **70** and location data of the dice **70** on the playing board **3**a.

For example, regarding the die **70**a shown in FIG. **11**A, in the infrared camera imaging data table, the CPU (not shown) inside the infrared camera **15** stores −50 for X and 55 for Y as location data, stores "○" for **181**, **182**, **184**, **186**, and **187**, to which the infrared absorption inks are being applied, and stores "X" for **183** and **185**, which are not being applied. The same is true of the dice **70**b and **70**c.

On the other hand, as shown in FIG. **13**A, in a case where a plurality of faces of the dice **70** is imaged, the number of dots cannot be specified uniquely. In this case, the CPU (not shown) inside the infrared camera **15** calculates the area of the profiles **75** on the plurality of faces thus imaged, and

generates the infrared camera imaging data table based on the dot patterns on the face that has a maximum area.

Therefore, even if the dice **70** come to rest at a tilt and a plurality of faces of the dice **70** is imaged, the number of dots can be specified uniquely.

In addition, this data table is transmitted from the infrared camera **15** to the CPU **81**, and then the CPU **81** receives it to analyze the number of dots on a die and the like.

A dot pattern data classification table is described with reference to FIG. **23**A.

According to this table, colors as the classification for the dice **70** are set so as to correspond to dot combinations to which the infrared absorption ink is applied, among the abovementioned dots **181** to **183** in FIG. **10**A. "○" indicates that the infrared absorption ink is applied to the dot, and "X" indicates that the infrared absorption ink is not applied to the dot.

For example, in a case where the infrared camera imaging data table described in FIG. **22**A is transmitted to the CPU **81**, the CPU **81** determines the classification of the dice **70** as "red" by comparing the infrared camera imaging data table with the dot pattern data classification table.

A number of dots-dot pattern data table is described with reference to FIG. **24**A.

According to this table, numbers as the number of dots on the dice **70** are set so as to correspond to dot combinations to which the infrared absorption ink is applied, among the abovementioned dots **184** to **187** in FIG. **10**A. "○" indicates that the infrared absorption ink is applied to the dot, and "X" indicates that the infrared absorption ink is not applied to the dot.

For example, in a case where the infrared camera imaging data table shown in FIG. **22**A is transmitted from the infrared camera **15** to the CPU **81**, the CPU **81** determines the number of dots on the dice **70** as "five" by comparing the infrared camera imaging data table thus received with the dot pattern data classification table.

A position, classification, and number of dots data table is described with reference to FIG. **25**A.

This table stores a position on the playing board **3**a of the dice **70** and the number of dots of the dice **70** for each classification of the dice, and further stores the position on the playing board **3**a of the dice **70** and the number of dots of the dice **70** in each game. It should be noted that this table is stored in the RAM **83**.

Furthermore, a position and number of dots of the dice **70** imaged by the infrared camera **15** in each game is stored by the CPU **81** in this table.

A classification and number of dots data table is described with reference to FIG. **26**A.

This table stores the number of dots on the dice **70** for each classification of dice, and further stores the number of dots on the dice **70** in each game. It should be noted that this table is stored in the RAM **83**.

Furthermore, a classification and number of dots of the dice **70** detected by the IC tag reader in each game is stored by the CPU **81** in this table based on identification data **1** to **3**.

A bet start instruction image is described with reference to FIG. **27**A.

The bet start instruction image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** before the CPU **81** accepts a bet from each station **4**.

This bet start instruction image instructs a dealer to touch a "bet start" button. When a touch panel **211** detects that the dealer has touched the "bet start" button, the touch panel **211** transmits a bet start instruction signal to the CPU **81** via a communication interface **95**.

A bet end not recommended image is described with reference to FIG. **28**A.

This bet end not recommended image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** while the CPU **81** accepts a bet from each station **4**.

This bet end not recommended image instructs the dealer not to touch a "bet end" button.

A bet end instruction image is described with reference to FIG. **29**A.

The bet end instruction image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** after elapse of a predetermined time from when the CPU **81** starts accepting a bet from each station **4**.

This bet end instruction image instructs the dealer to touch the "bet end" button. When the touch panel **211** detects that the dealer has touched the "bet end" button, the touch panel **211** transmits a bet end instruction signal to the CPU **81** via the communication interface **95**.

A display example on the image display unit **7** of each station **4** is described with reference to FIG. **30**A.

An image shown in FIG. **30**A is configured to report to each station **4** that accepting of bets has ended. A player can recognize that the accepting of bets has ended by confirming that a message "NO MORE BETS" is displayed.

A display example on the image display unit **7** of each station **4** is described with reference to FIG. **31**A.

The image shown in FIG. **31**A is configured to report to the station **4** in which a bet was not placed that a bet can be placed on a subsequent game. A player can recognize that a bet on the subsequent game is possible by confirming that a message "ABLE TO PLACE THE BET FOR THE NEXT GAME" is displayed.

The image shown in FIG. **32**A is displayed on a display screen **210**a of the dealer used display **210** in a case in which a frequency at which a specific number of dots (for example, 6) of a specific die (for example, a white die) appearing over 100 games exceeds a predetermined number (for example, 50 times).

FIG. **32**A shows a message "FREQUENCY THAT **6** DOTS APPEAR ON WHITE DIE OVER 201ST TO 300TH GAME EXCEEDS 50 TIMES!!".

Thus, in a case in which a specific number of dots of a specific classification of die appears frequently and the like, damage to a die or fraudulence related to a die can be detected.

Subsequently, with reference to FIGS. **33**A to **37**A, processing performed in the main control unit of a gaming machine according to the present embodiment is described.

FIG. **33**A is a flowchart showing dice game execution processing. Initially, in Step S**1**, the CPU **81** executes bet processing, which is described later in FIG. **34**A, and in Step S**3**, the CPU **81** executes dice rolling processing, which is described later in FIG. **36**A. In Step S**5**, the CPU **81** executes number of dots on dice detection processing **1** (described later in FIG. **37**A) or number of dots on dice detection processing **2** (described later in FIG. **38**A) and, in Step **7**, executes payout processing corresponding to the number of dots, and then the flow returns to Step **1**.

FIG. **34**A is a flowchart showing bet processing.

In Step S**11**, the CPU **81** displays the bet start instruction image (see FIG. **27**A) on the display screen **210**a of the dealer used display **210**. It should be noted that, whether or not the bet start instruction image is displayed may be

determined according to a dealer's level with reference to the instruction image display determination (see FIG. **17**A).

Thus, according to the dealer's level, it becomes possible to determine whether the bet start instruction image is displayed on the display screen **210**a of the dealer used display **210**.

In Step S**13**, the CPU **81** determines whether the bet start instruction signal has been received from the touch panel **211** disposed on the dealer used display **210**. In the case of a NO determination, the CPU **81** returns the processing to Step S**13**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**15**.

In Step S**15**, the CPU **81** transmits the bet start signal to each of the stations **4**. When the bet start signal is received, bet placement can be performed at each station **4**.

In Step S**17**, the CPU **106** determines whether or not a predetermined time has elapsed. More specifically, the CPU **81** starts to measure a predetermined lapse of time t by the timer **131**, compares the predetermined lapse of time t with a predetermined time T**1** stored in the ROM **82**, and determines whether the predetermined lapse of time t measured by the timer **131** has reached the predetermined time T**1**. In the case of a NO determination, the CPU **81** returns the processing to Step S**17**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**19**.

In Step S**19**, the CPU **81** displays the bet end instruction image (see FIG. **29**A) on the display screen **210**a of the dealer used display **210**. It should be noted that, whether or not the bet end instruction image is displayed may be determined according to a dealer's level with reference to the instruction image display determination (see FIG. **17**A).

In Step S**21**, the CPU **81** determines whether the bet end instruction signal has been received from the touch panel **211** disposed on the dealer used display **210**. In the case of a NO determination, the CPU **81** returns the processing to Step S**21**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**23**.

In Step S**23**, the CPU **81** transmits the bet end signal to each station **4**. When the bet end signal is received, bet placement cannot be accepted at each station **4**, and then the CPU **111** inside the station control unit **110** displays an image which reports on the image display unit **7** that an accepting of bet placement has been terminated (FIG. **30**A).

In Step S**25**, the CPU **81** receives bet information from each station **4**. The bet information relates to a normal bet input and a side bet input performed at each station **4**. In addition, the bet information includes information indicating whether bet placement has been performed or not which is included in the bet existence determination table (FIG. **18**A). Upon terminating the processing of Step S**25**, the CPU **81** terminates the bet processing.

With the bet processing of the present embodiment, even an inexperienced dealer can perform start operations for bet placement and end operations according to instructional images.

FIG. **35**A is a flowchart showing subsequent game bet processing.

The subsequent game bet processing is started by the CPU **81** and executed parallel to the dice rolling processing in FIG. **33**A when the bet processing described in FIG. **34**A is terminated. Therefore, placing a bet on the subsequent game becomes possible even during the dice rolling after termination of the bet processing.

In Step S**31**, the CPU **81** determines whether bet placement has been performed for each station **4**. More specifically, the CPU **81** distinguishes stations at which bet placement has been performed from stations at which bet placement has not been performed with reference to the bet existence determination table (FIG. **18**A).

In Step S**33**, the CPU **81** transmits a bet start signal for a subsequent game to the stations **4** at which bet placement has not been performed. When the station **4** receives the bet start signal for a subsequent game, the CPU **111** inside the station control unit **110** displays an image which reports that bet placement for a subsequent game is possible (FIG. **31**A) on the image display unit **7**.

Thus, even during a game, a player who has not participated in the game can place a bet on a subsequent game.

In Step S**35**, the CPU **81** determines whether or not a predetermined time has elapsed. More specifically, the CPU **81** starts to measure a predetermined lapse of time t by the timer **131**, compares the predetermined lapse of time t with a predetermined time T**2** stored in the ROM **82**, and determines whether the predetermined lapse of time t measured by the timer **131** has reached the predetermined time T**2**. In the case of a NO determination, the CPU **81** returns the processing to Step S**35**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**37**.

In Step S**37**, the CPU **81** transmits a bet end signal to the station **4** at which the bet start signal for a subsequent game has been received. When the station **4** receives the bet end signal, the player cannot place a bet on a subsequent game, and the CPU **81** terminates acceptance of bet placement for a subsequent game. Upon terminating the process in Step S**37**, the CPU **81** terminates the subsequent game bet processing.

FIG. **36**A is a flowchart showing dice rolling processing. In Step S**41**, the CPU **81** extracts an oscillation pattern (combinations of oscillation modes) data from the ROM **82**. More specifically, the CPU **81** refers to an oscillation mode data table (see FIG. **19**A) and extracts the oscillation pattern data at random.

In Step S**43**, the CPU **81** extracts a rendered effect corresponding to an oscillation mode from the ROM **82**. More specifically, the CPU **81** refers to the rendered effect table (see FIG. **20**A) and extracts rendered effect data corresponding to an oscillation mode based on an oscillation pattern data thus extracted in Step S**41**.

In Step S**45**, the CPU **81** oscillates the playing board **3**a and performs a rendered effect. More specifically, the CPU **81** oscillates the playing board **3**a by controlling the oscillation motor **300** based on the oscillation pattern data thus extracted in Step S**41**, and performs a rendered effect with sounds and/or lights based on rendered effect data corresponding to an oscillation mode.

Thus, since a rendered effect corresponding to an oscillation mode of the playing board **3**a is performed, games do not become monotonous and interest therein can be improved. Furthermore, since an oscillation pattern is randomly determined, games do not become monotonous and interest therein can be improved.

In Step S**47**, the CPU **81** ceases oscillation of the playing board **3**a. More specifically, the CPU **81** ceases the oscillation of the playing board **3**a by stopping the oscillation motor **300**. Upon terminating the processing in Step S**47**, the CPU **81** terminates the dice rolling processing.

FIG. **37**A is a flowchart showing number of dots on dice detection processing **1**.

In Step S**51**, the CPU **81** receives identification data from the IC tag reader **16**. More specifically, the CPU **81** receives identification data **1** to **3** (data in which a classification and number of dots of each of the dice **70**a, **70**b, and **70**c are stored) that configures the IC tag data table (see FIG. **21**A) from the IC tag reader **16**. In Step S**53**, the CPU **81**

determines a classification and number of dots of each of the three dice. More specifically, the CPU **81** determines a classification (color) and number of dots of each of the dice **70**a, **70**b, and **70**c based on the identification data **1** to **3** that configures the IC tag data table (see FIG. **21**A).

In Step S**55**, the CPU **81** stores the classification and number of dots of each of the three dice thus determined in memory. More specifically, the CPU **81** stores the classifications and numbers of dots thus determined in Step S**53** in the classification and number of dots data table (see FIG. **26**A) stored in the RAM **83**.

In Step S**57**, the CPU **81** increments a number of games counter by 1. The number of games counter is provided in a predetermined area of the RAM **83**.

In Step S**59**, the CPU **81** determines whether a value of the number of games counter is 300. In the case of a YES determination, the CPU **81** advances the processing to Step S**61**, and in the case of a NO determination, the CPU **81** advances the processing to Step S**63**.

In Step S**61**, the CPU **81** calculates a frequency at which each of a number of dots on dice appears during a 201st game to 300th game for each classification of dice. More specifically, with reference to the classification and number of dots data table (see FIG. **26**A), the CPU **81** calculates a frequency at which each of a number of dots on dice appears during a 201st games to 300th games for each classification of dice.

In Step S**63**, the CPU **81** determines whether the frequency at which a specific number of dots appears is more than 50 times. In the case of a YES determination, the CPU **81** advances the processing to Step S**65**, and in the case of a NO determination, the CPU **81** terminates the number of dots on dice detection processing. In Step S**65**, the CPU **81** displays a caution screen on a dealer used display. More specifically, the CPU **81** displays the image shown in FIG. **32**A on the display screen **210**a. Upon terminating the processing in Step S**65**, the CPU **81** terminates the number of dots detection processing **1**.

Thus, in a case in which a specific number of dots of a specific classification of die appears frequently and the like, damage to a die or fraudulence related to a die can be detected.

It should be noted that, in Step S**63**, although the CPU **81** determines whether the frequency at which a specific number of dots appears is more than 50 times, it is not limited thereto, and may determine for each classification of the dice whether a number of the dots on dice appears consecutively over a predetermined consecutive games (for example, 10 games). In a case of appearing consecutively over a predetermined number of games, an image including a message of "3 DOTS APPEARS ON BLACK DIE IN 10 CONSECUTIVE GAMES!!", for example, may be displayed as a warning image on the display screen **210**a of the dealer used display **210**.

Furthermore, it is not limited to display a warning screen in Step S**65**, and the CPU may interrupt a game.

Thus, it is possible to prevent a game from continuing in a case in which a specific number of dots of a specific classification of die appears frequently and the like due to damage to a die or fraudulence related to a die.

FIG. **38**A is a flowchart showing number of dots on dice detection processing **2**. The number of dots on dice detection processing **2** is a modified example of the number of dots on dice detection processing **1**.

In Step S**71**, the CPU **81** receives imaging data from the infrared camera. More specifically, the CPU **81** receives the infrared camera imaging data table (see FIG. **22**A) for each of the dice **70**a, **70**b, and **70**c, from the infrared camera **15**.

In Step S**73**, the CPU **81** determines a position, classification, and number of dots of each of the three dice. More specifically, the CPU **81** determines positions of the dice on the playing board **3**a based on the infrared camera imaging data table (see FIG. **22**A), determines types (colors) of the dice based on the infrared camera imaging data table (see FIG. **22**A) and the dot pattern data classification table (see FIG. **23**A), and determines numbers of the dice based on the infrared camera imaging data table (see FIG. **22**A) and the number of dots-dot pattern data table (see FIG. **24**A). This processing is executed for the three dice **70**a, **70**b, and **70**c.

In Step S**75**, the CPU **81** stores a position, classification, and number of dots of each of the three dice thus determined in memory. More specifically, the CPU **81** stores the positions, classifications, and numbers of dots thus determined in Step S**73** in the position, classification, and number of dots data table (see FIG. **25**A) stored in the RAM **83**.

In Step S**77**, the CPU **81** increments a number of games counter by 1. The number of games counter is provided in a predetermined area of the RAM **83**.

In Step S**79**, the CPU **81** determines whether a value of the number of games counter is 300. In the case of a YES determination, the CPU **81** advances the processing to Step S**81**, and in the case of a NO determination, the CPU **81** advances the processing to Step S**83**.

In Step S**81**, the CPU **81** calculates a frequency at which each number of dots appears during a 201st game to 300th game for each classification of dice. More specifically, with reference to the position, classification and number of dots data table (see FIG. **25**A), a frequency at which each number of dots appears during a 201st game to 300th game for each type of dice is calculated.

In Step S**83**, the CPU **81** determines whether the frequency at which a specific number of dots appears is more than 50 times. In the case of a YES determination, the CPU **81** advances the processing to Step S**85**, and in the case of NO, terminates the number of dots on dice detection processing **2**.

In Step S**85**, the CPU **81** displays a warning screen on a dealer used display. More specifically, the CPU **81** displays the image shown in FIG. **32**A on the display screen **210**a. Upon terminating the processing of Step S**85**, the CPU **81** terminates the number of dots detection processing **2**.

Thus, in a case in which a specific number of dots of a specific classification of die appears frequently and the like, damage to a die or fraudulence related to a die can be detected.

Furthermore, in Step S**83**, although the CPU **81** determines whether the frequency at which a specific number of dots appears is more than 50 times, it is not limited thereto, and may determine for each classification of dice whether a number of the dots on dice appears consecutively over a predetermined number of games (for example, 10 games) with reference to the position, classification and number of dots on dice data table (see FIG. **25**A). In a case of appearing consecutively over a predetermined number of games, an image including a message of "3 DOTS APPEARS ON BLACK DIE IN 10 CONSECUTIVE GAMES!!", for example, is displayed as a warning image on the display screen **210**a of the dealer used display **210**.

Furthermore, it is not limited to display the warning screen in Step S**85**, and the CPU may interrupt a game.

Thus, it is possible to prevent a game from continuing in a case in which a specific number of dots of a specific

classification of die appears frequently and the like due to damage to a die or fraudulence related to a die.

Descriptions regarding the present embodiment have been provided above. Although a case has been described in which the number of dice **70** is three according to the present embodiment, the number of in the present invention is not limited to three and, for example, the number of the dice may be five.

In the present embodiment, although the controller of the present invention is described for a case of being configured from a CPU **81** which the main controller **80** includes and a CPU **111** which the station **4** includes, the controller of the present invention may be configured by only a single CPU.

Although embodiments of the present invention are described above, they are merely exemplified specific examples, and the present invention is not particularly limited thereto. Specific configurations such as each means can be modified appropriately. Moreover, it should be understood that the advantages described in association with the embodiments are merely a listing of most preferred advantages, and that the advantages of the present invention are by no means restricted to those described in connection with the embodiments.

Embodiments of the present invention will be described below with reference to the accompanying drawings.

Although described below in more detail, as shown in FIG. **1**B, a CPU **81** starts a unit game (Step S**100**), determines an oscillation mode of a playing board **3**a when the unit game starts (Step S**200**), extracts rendered effect data corresponding to the oscillation mode thus determined (Step S**300**) from ROM **82**, and performs rendered effects based on the rendered effect data thus extracted (Step S**400**).

FIG. **2**B is a perspective view schematically showing an example of a gaming machine according to the embodiment of this invention. FIG. **3**B is an enlarged view of a playing unit of the gaming machine shown in FIG. **2**B. As shown in FIG. **2**B, a gaming machine **1** according to the present embodiment includes a housing **2** as a main body portion, a playing unit **3** that is provided substantially at the center of the top face of the housing **2** and in which a plurality of dice **70** are rolled and stopped, a plurality of stations **4** disposed so as to surround the playing unit **3**, and a dealer used display **210** that is positioned so as not to be visually recognizable by a player seated at each station **4**. The station **4** includes an image display unit **7**. The player seated at each station **4** can participate in a game by predicting numbers of dots on the dice **70** and performing a normal bet input and a side bet input.

The gaming machine **1** includes a housing **2** as a main body portion, a playing unit **3** that is provided substantially at the center of the top face of the housing **2** and in which a plurality of dice **70** are rolled and stopped, and a plurality of stations **4** (ten in this embodiment) disposed so as to surround the playing unit **3**.

The station **4** include a game media receiving device **5** into which game media such as medals to be used for playing the game are inserted, a control unit **6**, which is configured with multiple control buttons by which a player enters predetermined instructions, and an image display unit **7**, which displays images relating to a bet table. The player may participate in a game by operating the control unit **6** or the like while viewing the image displayed on the image display unit **7**.

A payout opening **8**, from which a player's game media are paid out, are provided on the sides of the housing **2** on which each station **4** is provided. In addition, a speaker **9**, which can output sound, is disposed on the upper right of the image display unit **7** on each of the stations **4**.

A control unit **6** is provided on the side part of the image display unit **7** on each of the stations **4**. As viewed from a position facing the station **4**, in order from the left side are provided a select button **30**, a payout (cash-out) button **31**, and a help button **32**.

The select button **30** is a button that is pressed when confirming a bet operation after the bet operation is complete. Furthermore, in a case other than the bet operation, the button is pressed when a player confirms an input performed.

The payout button **31** is a button which is usually pressed at the end of a game, and when the payout button **31** is pressed, game media corresponding to credits that the player has acquired is paid out from the payout opening **8**.

The help button **32** is a button that is pressed in a case where a method of operating the game is unclear, and upon the help button **32** being pressed, a help screen showing various kinds of operation information is displayed immediately thereafter on the image display unit **7**. The playing unit **3** is configured so as to allow a plurality of dice to roll and stop. The present embodiment is configured to use three dice **70** (dice **70**a, **70**b, and **70**c) at the playing unit **3**.

A speaker **221** and a lamp **222** are disposed around the playing unit **3**. The speaker **221** performs rendered effects by outputting sounds while the dice **70** are being rolled. The lamp **222** performs rendered effects by emitting lights while the dice **70** are being rolled.

The playing unit **3** includes a playing board **3**a to, which is formed to be a circular shape, roll and then stop the dice **70**. An IC tag reader **16**, which is described later in FIGS. **6**B to **9**B, are provided below the playing board **3**a.

Since the playing board **3**a is formed to be substantially planar, as shown in FIG. **3**B, the dice **70** are rolled by oscillating the playing board **3**a substantially in the vertical direction with respect to the horizontal direction of the playing board **3**a. Then, the dice **70** are stopped after the oscillation of the playing board **3**a ceases. The playing board **3**a is oscillated by a CPU **81** (described later) driving an oscillating motor **300**.

Furthermore, as shown in FIG. **3**B, the playing unit **3** is covered with a cover member **12** of which the entire upper area is made of a transparent acrylic material formed in a hemispherical shape, and regulates the rolling area of the dice **70**. In the present embodiment, an infrared camera **15** is provided at the top of the cover member **12** to detect numbers of dots and the like (such as positions of the dice **70** on the playing board **3**a, types of the dice **70**, and numbers of dots of the dice **70**) of the dice **70**. Furthermore, the cover member **12** is covered with a special film (not shown) which blocks infrared radiation. In this way when the numbers of dots of the dice **70** on which an infrared absorption ink has been applied is detected with the infrared camera **15**, false detection can be prevented that arises, for example, in a case where a blink rate of a light irradiated from a circumference of the playing unit **3** is fast.

FIG. **4**B is an external perspective view of a die **70**. As shown in FIG. **4**B, the die **70** is a cube of which the length of a side is 100 mm.

FIG. **5**B is a development view of the die **70**. As shown in FIG. **5**B, the combinations of two faces opposing each other are "1 and 6", "2 and 5", and "3 and 4".

FIGS. **6**B to **9**B show IC tag readable areas by an IC tag reader **16** disposed below the playing board **3**a.

Here, a way of reading information stored in the IC tag by the IC tag reader **16** is described below.

The IC tag reader **16** is a non-contact type IC tag reader. For example, it is possible to read information stored in the IC tag by RFID (Radio Frequency Identification). The RFID system performs near field communication that reads and writes data stored in semi-conductor devices by an induction field or radio waves in a non-contact manner. In addition, since this technology is known conventionally and is described in Japanese Unexamined Patent Application Publication No. H8-21875, an explanation thereof is abbreviated.

In the present embodiment, a plurality of IC tags is read by a single IC tag reader **16**. Under the abovementioned RFID system, an anti-collision function can be employed which can read a plurality of IC tags by a single reader. The anti-collision function includes FIFO (first in first out) type, multi-access type, and selective type, and communicates with a plurality of the IC tags sequentially. The FIFO type is a mode to communicate with a plurality of the IC tags sequentially in the order that each IC tag enters an area in which an antenna can communicate therewith. The multi-access type is a mode that is able to communicate with all the IC tags, even if there is a plurality of the IC tags simultaneously in the area in which an antenna can communicate with the IC tags. The selective type is a mode that is able to communicate with a specific IC tag among a plurality of the IC tags in the area in which an antenna can communicate therewith. By employing the abovementioned modes, it is possible to read a plurality of the IC tags with a single IC tag reader. In addition, reading the IC tags may not only be done by the non-contact type, but also a contact type. In addition, the IC tag reader is not limited thereto, and anything that is appropriately designed with the object of being read may be employed.

In the present embodiment, a readable area of the IC tag reader **16** is 10 mm in substantially a vertical direction from substantially an entire horizontal face on the playing board **3**a.

With reference to FIG. **6**B, a face of the die **70** (for example, a face of which the number of dots is six) is in contact with the playing board **3**a. Furthermore, the IC tag is embedded substantially at the center of each face of the die **70** (the IC tags for the faces on which the numbers of dots are "3" and "4" are not shown). An IC tag **51** is embedded substantially at the center of a face on which the number of dots is six. An IC tag **52** is embedded substantially at the center of a face on which the number of dots are five. An IC tag **53** is embedded substantially at the center of a face on which the number of dots is one. An IC tag **54** is embedded substantially at the center of a face on which the number of dots is two.

Here, only the IC tag **51** exists in the readable area of the IC tag reader **16**. Therefore, the number of dots (in this case, "one") of a face, opposing the face on which the IC tag **51** is embedded, is determined as the number of dots of the die **70**.

Furthermore, since the number of dots of a face, opposing a face on which an IC tag is embedded, is determined as the number of dots of the die **70**, "one" is stored, as data of the number of dots, in the IC tag **51** on the face of which the number of dots is "six". "Two" is stored, as data of the number of dots, in the IC tag **52** on the face of which the number of dots is "five". "Six" is stored, as data of the number of dots, in the IC tag **53** on the face of which the number of dots is "one". "Five" is stored, as data of the number of dots, in the IC tag **54** on the face of which the number of dots is "two". "Three" is stored, as data of the number of dots, in the IC tag (not shown) on the face of which the number of dots is "four". Finally, "four" is stored, as data of the number of dots, in the IC tag (not shown) on the face of which the number of dots is "three".

Furthermore, as described above, since a side of the die **70** is 10 mm, it is not physically possible for an IC tag reader **16** to detect more than one IC tag with respect to one die.

With reference to FIG. **7**B, a die **70** is inclined. However, since the IC tag **51** still exists in the readable area of the IC tag reader **16**, the number of dots of the die **70** is determined as "one".

With respect to FIG. **8**B, the die **70** is inclined at a greater angle than the case shown in FIG. **7**B. Then, since there is no IC tag which exists in the readable area of the IC tag reader **16**, the IC tag reader **16** cannot detect the number of dots of the die **70**.

With reference to FIG. **9**B, the die **70**b is superimposed on the die **70**a. In this case, neither of the IC tags **55**, **56**, **57**, and **58**, which are embedded in the die **70**b, exists in the readable area of the IC tag reader **16**. Therefore, in this case, the IC tag reader **16** cannot detect the number of dots of the die **70**b.

FIG. **10**B shows a sheet **140** attached to each face of the die **70**.

As shown in FIG. **10**B, on each face of the die **70**, the sheet **140**, to which infrared absorption ink is applied to identify the number of dots and the type of the die **70**, is provided so as to be covered by a sheet on which the number of dots is printed. According to FIG. **10**B, the infrared absorption ink can be applied to dots **181**, **182**, **183**, **184**, **185**, **186**, and **187**.

The number of dots of the die **70** can be identified by a combination of the dots to which the infrared absorption ink is applied among the dots **184**, **185**, **186**, and **187**. In addition, the type of the die **70** can be identified by a combination of the dots to which the infrared absorption ink is applied among the dots **181**, **182**, and **183**.

FIG. **11**B shows an image in which the dice **70**, which comes to rest on the playing board **3**a, are imaged substantially in the vertically upward direction using an infrared camera **15**.

With reference to FIG. **11**B, dots to which the infrared absorption ink is applied on each of the dice **70**a, **70**b, and **70**c are imaged in black. The type and the number of dots for each of the dice **70**a, **70**b, and **70**c are determined based on a combination of the dots to which the ink is applied. In addition, the playing board **3**a is formed in a disc shape having a radius a, and each position of the dice **70**a, **70**b, and **70**c is detected as an x component and y component on an x-y coordinate.

FIG. **12**B shows a sheet **150** which is attached to each face of the dice **70**.

As shown in FIG. **12**B, a circular profile **75** having a certain area on each face of the dice **70** in common is depicted by way of applying the infrared absorption ink on each face of the dice **70**. The sheet **150** on which the circular profile **75** is depicted is provided so as to be covered by the abovementioned sheet **140**.

FIG. **13**B shows an image in which the die **70**, which comes to rest at a tilt on a playing board **3**a, is imaged substantially in the vertically upward direction using the infrared camera **15**.

With reference to FIG. **13**B, three faces of the die **70** are imaged. Therefore, it is necessary to distinguish the number of dots of which face is correct. Consequently, the number of dots having the largest area among the three faces is determined as the face that should be read. In a case of this distinction, the CPU (not shown) in the infrared camera **15** calculates the areas of the circular profiles **75** thus imaged,

and distinguishes the number of dots of the face on which the circular profile **75** having the largest area among the areas thus calculated is printed as the correct number of dots.

FIG. **14**B shows an example of a display screen displayed on an image display unit. As shown in FIG. **14**B, an image display unit **7** is a touch-panel type of liquid crystal display, on the front surface of which a touch panel **35** is attached, allowing a player to perform selection such as of icons displayed on a liquid crystal screen **36** by contacting the touch panel **35**, e.g., with a finger.

A table-type betting board (a bet screen) **40** for predicting the number of dots of the dice **70** is displayed in a game at a predetermined timing on the image display unit **7**.

A detailed description is now provided regarding the bet screen **40**. On the bet screen **40** are displayed a plurality of normal bet areas **41** and a side bet area **42**. The plurality of normal bet areas **41** includes a normal bet area **41**A, a normal bet area **41**B, a normal bet area **41**C, a normal bet area **41**D, a normal bet area **41**E, a normal bet area **41**F, a normal bet area **41**G, and a normal bet area **41**H. By contacting the touch panel **35**, e.g., with a finger, the normal bet area **41** is designated, and by displaying, chips in the normal bet area **41** thus designated, a normal bet operation is performed. Furthermore, by contacting the touch panel **35**, e.g., with a finger, the side bet area **42** is designated, and by displaying chips in the side bet area **42** thus designated, a side bet operation is performed.

A unit bet button **43**, a re-bet button **43**E, a payout result display unit **45**, and a credit amount display unit **46** are displayed at the right side of the side bet area **42** in order from the left side.

The unit bet button unit **43** is a group of buttons that are used by a player to bet chips on the normal bet area **41** and the side bet area **42** designated by the player. The unit bet button unit **43** is configured with four types of buttons including a 1 bet button **43**A, a 5 bet button **43**B, a 10 bet button **43**C, and a 100 bet button **43**D. It should be noted that in the case of an incorrect bet operation, the player can start a bet operation again by touching a re-bet button **43**E.

Firstly, the player designates the normal bet area **41** or the side bet area **42** using a cursor **47** by way of contacting the touch panel **35**, e.g., with a finger. At this time, contacting the 1 bet button **43**A, e.g., with a finger, allows for betting one chip at a time (number of chips to be bet increases one by one in the order of 1, 2, 3, every time the 1 bet button **43**A is contacted, e.g., by a finger). Similarly, when contacting the 5 bet button **43**B, e.g., with a finger, five chips at a time can be bet (number of chips to be bet increases five by five in the order of 5, 10, 15, every time the 5 bet button **43**B is contacted, e.g., by a finger). Similarly, when contacting the 10 bet button **43**C, e.g., with a finger, ten chips at a time can be bet (number of chips to be bet increases ten by ten in the order of 10, 20, 30, every time the 10 bet button **43**C is contacted, e.g., by a finger). Similarly, when contacting the 100 bet button **43**D, e.g., with a finger, a hundred chips at a time can be bet (number of chips to be bet increases hundred by hundred in the order of 100, 200, 300, . . . every time the 100 bet button **43**D is contacted, e.g. by a finger). The number of chips bet up to the current time is displayed as a chip mark **48**, and the number displayed on the chip mark **48** indicates the number of bet chips.

The number of bet chips and payout credit amount for a player in a previous game are displayed in the payout result display unit **45**. The number calculated by subtracting the number of bet chips from the payout credit amount is a newly acquired credit amount for the player in the previous game.

The credit amount display unit **46** displays the credit amount which the player possesses. The credit amount decreases according to the number of bet chips (1 credit amount for **1** chip) when the player bets chips. If the bet chips are entitled to an award and credits are paid out, the credit amount increases in accordance with the number of paid out chips. It should be noted that the game is over when the player's credit amount becomes zero.

The normal bet area **41** in the bet screen **40** is described next. The normal bet areas **41**A and **41**B are portions where the player places a bet on a predicted sum of dots appearing on the dice **70**A to **70**C. In other words, the player selects the normal bet area **41**A if the predicted sum falls in a range of 4 to 10, or the normal bet area **41**B if the predicted sum falls in a range of 11 to 17. Odds are set to 1:1 (2 chips are paid out for 1 chip bet).

The normal bet area **41**C is a portion where the player places a bet, predicting that two dice **70** have the same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1), (2, 2), (3, 3), (4, 4), (5, 5), and (6, 6), and the odds are set to 1:10.

The normal bet area **41**D is a portion where the player places a bet, predicting that all three dice have the same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), and (6, 6, 6), and the odds are set to 1:30.

The bet area **41**E is a portion where the player places a bet on a predicted number of dots appearing commonly on all three dice. In other words, the player places a bet on one of the combinations of (1, 1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), or (6, 6, 6), and the odds are set to 1:180.

The normal bet area **41**F is where the player places a bet, predicting a total, a summation of dots appearing on the three dice. Odds are set according to the occurrence frequency of the total. For example, if the total is 4 or 17, odds are set to 1:60; if the total is 5 or 16, odds are set to 1:30; if the total is 6 or 15, odds are set to 1:18; if the total is 7 or 14, odds are set to 1:12; if the total is 8 or 13, odds are set to 1:8; if the total is 9 or 12, odds are set to 1:7; and if the total is 10 or 11, odds are set to 1:6.

The bet area **41**G is a portion where the player places a bet on predicted dots appearing on the two dice selected from the three, and the odds are set to 1:5.

The normal bet area **41**H is a region where the player places a bet on the number of dots appearing on the dice **70**, and the odds are set according to the number of dots of the dice **70** matching the predicted number of dots.

FIG. **15**B is a block diagram showing the internal configuration of the gaming machine shown in FIG. **2**B. A main control unit **80** of the gaming machine **1** includes a microcomputer **85**, which is configured with a CPU **81**, ROM **82**, RAM **83**, and a bus **84** that transfers data therebetween.

The CPU **81** is connected with an oscillating motor **300** via an I/O interface **90**. Furthermore, the CPU **81** is connected with a timer **131**, which can measure time via the I/O interface **90**. In addition, the CPU **81** is connected with a lamp **222** via the I/O interface **90**. The lamp **222** emits various colors of light for performing various types of rendered effects, based on output signals from the CPU **81**. Furthermore, the CPU **81** is connected with a speaker **221** via the I/O interface **90** and a sound output circuit **231**. The speaker **221** emits various sound effects for performing various types of rendered effects, based on output signals from the sound output circuit **231**. Furthermore, the I/O interface **90** is connected with the abovementioned infrared camera **15** and/or the IC tag reader **16**, thereby transmitting

and receiving information in relation to the number of dots of the three dice **70**, which comes to rest on the playing board **3**a, between the infrared camera **15** and/or the IC tag reader **16**.

Here, the oscillating motor **300**, the infrared camera **15**, the IC tag reader **16**, the lamp **222**, the sound output circuit **231**, and the speaker **221** are provided within a single composite unit **220**.

In addition, via a communication interface **95** connected to the I/O interface **90**, the main control unit **80** transmits and receives data such as bet information, payout information, and the like to and from each station **4**, as well as data such as bet start instruction images, bet start instruction signals, and the like to and from the dealer used display **210**.

Furthermore, the I/O interface **90** is connected with a history display unit **91**, and the main control unit **80** transmits and receives information in relation to the number of dots on the die, to and from the history display unit **90**.

ROM **82** in the main control unit **80** is configured to store a program for implementing basic functions of the gaming machine **1**; more specifically, a program for controlling various devices which drive the playing unit **3**, a program for controlling each station **4**, and the like, as well as a payout table, data indicating a predetermined time T, data indicating a specific value TT, and the like.

RAM **83** is memory, which temporarily stores various types of data calculated by CPU **81**, and, for example, temporarily stores data bet information transmitted from each station **4**, information on respective number of dots that appear on the dice **70** transmitted from the infrared camera **15** and/or the IC tag reader **16**, data relating to the results of processing executed by CPU **81**, and the like. A jackpot storage area is provided in the RAM **83**. In the jackpot storage area, the data indicating the number of playing media stored cumulatively is stored so as to correspond to each number of dots of matching dice. The data is provided to the station **4** at a predetermined timing, and a jackpot image is displayed. The CPU **81** controls the oscillating motor **300**, which oscillates the playing unit **3**, based on data and a program stored in the ROM **82** and the RAM **83**, and oscillates the playing board **3**a of the playing unit **3**. Furthermore, after oscillation of the playing board **3**a ceases, a control processing associated with game progression, such as confirmation processing for confirming the number of dots on each of the dice **70** resting on the playing board **3**a.

In addition to the control processing described above, the CPU **81** has a function of executing a game by transmitting and receiving data to and from each station **4** so as to control each station **4**. More specifically, the CPU **81** accepts bet information transmitted from each station **4**. Furthermore, the CPU **81** performs win determination processing based on the number of dots on the dice **70** and the bet information transmitted from each station **4**, and calculates the amount of an award paid out in each station **4** with reference to the payout table stored in the ROM **82**.

FIG. **16**B is a block diagram showing the internal configuration of the station shown in FIG. **2**B. The station **4** includes a main body **100** in which an image display unit **7** and the like are provided, and a game media receiving device **5**, which is attached to the main body **100**. The main body **100** further includes a station control unit **110** and several peripheral devices.

The station control unit **110** includes a CPU **111**, ROM **112**, and RAM **113**.

ROM **112** stores a program for implementing basic functions of the station **4**, other various programs needed to control the station **4**, a data table, and the like.

Moreover, a decision button **30**, a payout button **31**, and a help button **32** provided in the control unit **6** are connected to the CPU **111**, respectively. The CPU **111** controls the execution of various corresponding operations in accordance with manipulation signals, which are generated in response to each button pressed by a player. More specifically, the CPU **111** executes various processing, based on input signals transmitted from the control unit **6** in response to a player's operation which has been inputted, and the data and programs stored in the ROM **112** and RAM **113**. Subsequently, the CPU **111** transmits the results to the CPU **81** in the main control unit **80**.

In addition, the CPU **111** in the main control unit **80** receives instruction signals from the CPU **81**, and controls peripheral devices which configure the station **4**. The CPU **111** performs various kinds of processing based upon the input signals supplied from the control unit **6** and the touch panel **35**, and the data and the programs stored in the ROM **112** and the RAM **113**. Then, the CPU **111** controls the peripheral devices which configure the station **4** based on the results of the processing. It should be noted that the mode whereby processing is performed is set for each processing depending on the content of the processing. For example, the former approach is applied to payout processing of game media for respective numbers of dots appearing on the dice, and the latter approach is applied to bet operation processing by a player.

Furthermore, a hopper **114**, which is connected to the CPU **111**, pays out a predetermined amount of game media through the payout opening **8**, receiving the instruction signals from the CPU **111**.

Moreover, the image display unit **7** is connected to the CPU **111** via a liquid crystal driving circuit **120**. The liquid crystal driving circuit **120** includes program ROM, image ROM, an image control CPU, work RAM, a video display processor (VDP), video RAM, and the like. Here, the program ROM stores an image control program with respect to the display functions of the image display unit **7**, and various kinds of selection tables. The image ROM stores dot data for creating an image to be displayed on the image display unit **7**, and dot data for displaying a jackpot image, for example. In addition, the image control CPU determines an image to be displayed on the image display unit **7**, selected from the dot data previously stored in the image ROM according to the image control program previously stored in the program ROM based on parameters specified by the CPU **111**. The work RAM is configured as a temporary storage means when executing the image control program by the image control CPU. The VDP forms an image corresponding to the display contents determined by the image control CPU and outputs the resulting image on the image display unit **7**. It should be noted that the video RAM is configured as a temporary storage device used by the VDP for creating an image.

As mentioned above, the touch panel **35** is attached to the front side of the image display unit **7**, and the information related to operation on the touch panel **35** is transmitted to the CPU **111**. The touch panel **35** detects an input operation by the player on a bet screen **40** and the like. More specifically, selection of the normal bet area **41** and the side bet area **42** in the bet screen **40**, manipulation of the bet button unit **43** and the like, are performed by touching the touch panel **35**, and the information thereof is transmitted to the CPU **111**. Then, a player's bet information is stored in the RAM **113** based on the information stored. Furthermore,

the bet information is transmitted to the CPU **81** in the main control unit **80**, and stored in a bet information storage area in the RAM **83**.

Moreover, a sound output circuit **126** and a speaker **9** are connected to the CPU **111**. The speaker **9** emits various sound effects for performing various kinds of rendered effects, based on output signals from the sound output circuit **126**. In addition, the game media receiving device **5**, into which game media such as coins or medals are inserted, is connected to the CPU **111** via a data receiving unit **127**. The data receiving unit **127** receives credit signals transmitted from the game media receiving device **5**, and the CPU **111** increases a player's credit amount stored in the RAM **113** based on the credit signals transmitted.

A timer **130**, which can measure time, is connected to the CPU **111**.

A gaming board **60** includes a CPU (Central Processing Unit) **61**, ROM **65** and boot ROM **62**, a card slot **63**S compatible with a memory card **63**, and an IC socket **64**S compatible with a GAL (Generic Array Logic) **64**, which are connected to one another via an internal bus.

The memory card **63** comprises nonvolatile memory such as compact flash (trademark) or the like, which stores a game program and a game system program.

Furthermore, the card slot **63**S has a configuration that allows the memory card **63** to be detachably inserted, and is connected to the CPU **111** via an IDE bus. Such an arrangement allows the kinds or content of the game provided by the station **4** to be changed by performing the following operation. More specifically, the memory card **63** is first extracted from the card slot **63**S, and another game program and another game system program are written to the memory card **63**. Then, the memory card **63** thus rewritten is inserted into the card slot **63**S. In addition, the kinds or content of the games provided by the station **4** can be changed by replacing the memory card **63** storing a game program and a game system program with another memory card **63** storing another game program and game system program. The game program includes a program for advancing a game and the like. The game program also includes a program related to image data and sound data outputted during a game.

The GAL **64** is one type of PLD that has a fixed OR array structure. The GAL **64** includes multiple input ports and output ports and, upon receiving predetermined data via each input port, outputs output data that corresponds to the input data via the corresponding output port. In addition, an IC socket **64**S has a structure that allows the GAL **64** to be detachably mounted, and is connected to the CPU **111** via the PCI bus.

The CPU **61**, the ROM **65**, and the boot ROM **62**, which are connected to one another via the internal bus, are connected to the CPU **111** via the PCI bus. The PCI bus performs signal transmission between the CPU **111** and the gaming board **60**, as well as supplying electric power from the CPU **111** to the gaming board **60**. The ROM **65** stores country identification information and an authentication program. The boot ROM **62** stores a preliminary authentication program, a program (boot code) which instructs the CPU **61** to start up the preliminary authentication program, etc.

The authentication program is a program (forgery check program) for authenticating the game program and the game system program. The authentication program is defined to follow the procedure (authentication procedure) for confirming and authenticating that the game program and the game system program, which are to be acquired after the authentication, have not been forged, i.e. the procedure for authenticating the game program and the game system program. The preliminary authentication program is a program for authenticating the aforementioned authentication program. The preliminary authentication program is defined to follow the procedure for verifying that the authentication program has not been forged, i.e. the procedure for authenticating the authentication program (authentication procedure).

An instruction image display determination table is described with reference to FIG. **17**B.

In Steps S**11** and S**19** of FIG. **31**B, the instruction image display determination table is referred to by the CPU **81** upon determining whether a bet start instruction image or a bet end instruction image is displayed on the display screen **210**a of the dealer used display **210**.

According to this table, "X" is data for indicating that the bet start instruction image and the like is not displayed on the display screen **210**a, and "○" is data for indicating that the bet start instruction image and the like is displayed on the display screen **210**a. For example, in a case in which a dealer belongs to an intermediate level, the bet start instruction image is not displayed on the display screen **210**a, but the bet end instruction image is displayed on the display screen **210**a. In addition, this table is stored in the ROM **82**.

The bet existence determination table is described with reference to FIG. **18**B.

The CPU **81** refers to this bet existence determination table upon determining for each station **4** whether a bet operation is performed at each station **4** in Step S**31** of FIG. **32**B.

Data indicating whether the bet operation has been performed or not at each station number is stored in this table. "P" is data indicating that a bet operation was performed, and "A" is data indicating that a bet operation was not performed. In addition, this table is updated in every game, and stored in the RAM **83**.

An oscillation mode data table is described with reference to FIG. **19**B.

The CPU **81** refers to this oscillation mode data table upon determining combination patterns of the oscillation modes of the playing board **3**a. In addition, this table is stored in the ROM **82**.

According to this table, in a case of a pattern **3**, the roll of dice **70** is performed in the order of a small oscillation for six seconds, a large oscillation for four seconds, and a subtle oscillation for five seconds. Here, the order of oscillation amplitude of the playing board **3**a is equal to large oscillation>small oscillation>subtle oscillation. It should be noted that the oscillation speed for the large oscillation, the small oscillation, and the subtle oscillation are all the same speed. Furthermore, the small oscillation is enough to be able to roll a die, the large oscillation is enough to jump a die, and the subtle oscillation is enough to level off a die that comes to rest at a tilt.

A rendered effect table is described with reference to FIG. **20**B.

The CPU **81** refers to this rendered effect table upon determining rendered effect data in response to an oscillation pattern of the playing board **3**a in Step S**43** of FIG. **33**B. In addition, this table is stored in the ROM **82**.

According to this table, oscillation modes correspond to sound types and, for example, in the case of a large oscillation, "sound **2**" is determined. For example, in the case of "sound **2**", the sound indicating that a die jumps is outputted from the speaker **221**.

It should be noted that, by way of associating an oscillation mode with a certain type of emitted light, rendered

effects with a light emitting mode associated with an oscillation mode may be performed by lighting or flashing of the lamp **222**.

An IC tag data table is described with reference to FIG. **21**B.

The IC tag data table is a table showing data as identification data **1** to **3** which is created by the CPU **81** based on the results of the type of dice and the number of dots on the dice, when information stored in IC tags embedded in the dice **70**a, **70**b, and **70**c is detected by the IC tag reader **16**.

According to this table, for example, when an IC tag embedded in each die is detected in the order of **70**c, **70**a, and **70**b, by the IC tag reader **16**, the die **70**c is associated with identification data **1** of which the type is "red" and the number of dots is "six", the die **70**a is associated with identification data **2** of which the type is "white" and the number of dots is "three", and the die **70**b is associated with identification data **3** of which the type is "black" and the number of dots is "five".

On the other hand, when three dice are not detected, for example, in a case where only two dice are detected, identification data is created for only 2 sets, identification data **1** and **2**.

In addition, the data table is transmitted from the IC tag reader **16** to the CPU **81**, and then the CPU **81** receives it to analyze the number of dots on a die and the like.

An infrared camera imaging data table is described with reference to FIG. **22**B.

The infrared camera imaging data table is a data table showing dot patterns of the infrared absorption inks applied to the dice **70** and location data of the dice **70** on the playing board **3**a.

For example, regarding the die **70**a shown in FIG. **11**B, in the infrared camera imaging data table, the CPU (not shown) inside the infrared camera **15** stores −50 for X and 55 for Y as location data, stores "○" for **181**, **182**, **184**, **186**, and **187**, to which the infrared absorption inks are being applied, and stores "X" for **183** and **185**, which are not being applied. The same is true of the dice **70**b and **70**c.

On the other hand, as shown in FIG. **13**B, in a case where a plurality of faces of the dice **70** is imaged, the number of dots cannot be specified uniquely. In this case, the CPU (not shown) inside the infrared camera **15** calculates the area of the profiles **75** on the plurality of faces thus imaged, and generates the infrared camera imaging data table based on the dot patterns on the face that has a maximum area.

Therefore, even if the dice **70** come to rest at a tilt and a plurality of faces of the dice **70** is imaged, the number of dots can be specified uniquely.

In addition, this data table is transmitted from the infrared camera **15** to the CPU **81**, and then the CPU **81** receives it to analyze the number of dots on a die and the like.

A dot pattern data classification table is described with reference to FIG. **23**B.

According to this table, colors as the classification for the dice **70** are set so as to correspond to dot combinations to which the infrared absorption ink is applied, among the abovementioned dots **181** to **183** in FIG. **10**B. "○" indicates that the infrared absorption ink is applied to the dot, and "X" indicates that the infrared absorption ink is not applied to the dot.

For example, in a case where the infrared camera imaging data table described in FIG. **22**B is transmitted to the CPU **81**, the CPU **81** determines the classification of the dice **70** as "red" by comparing the infrared camera imaging data table with the dot pattern data classification table.

A number of dots-dot pattern data table is described with reference to FIG. **24**B.

According to this table, numbers as the number of dots on the dice **70** are set so as to correspond to dot combinations to which the infrared absorption ink is applied, among the abovementioned dots **184** to **187** in FIG. **10**B. "○" indicates that the infrared absorption ink is applied to the dot, and "X" indicates that the infrared absorption ink is not applied to the dot.

For example, in a case where the infrared camera imaging data table shown in FIG. **22**B is transmitted from the infrared camera **15** to the CPU **81**, the CPU **81** determines the number of dots on the dice **70** as "five" by comparing the infrared camera imaging data table thus received with the dot pattern data classification table.

A bet start instruction image is described with reference to FIG. **25**B.

The bet start instruction image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** before the CPU **81** accepts a bet from each station **4**.

This bet start instruction image instructs a dealer to touch a "bet start" button. When a touch panel **211** detects that the dealer has touched the "bet start" button, the touch panel **211** transmits a bet start instruction signal to the CPU **81** via a communication interface **95**.

A bet end not recommended image is described with reference to FIG. **26**B.

This bet end not recommended image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** while the CPU **81** accepts a bet from each station **4**.

This bet end not recommended image instructs the dealer not to touch a "bet end" button.

A bet end instruction image is described with reference to FIG. **27**B.

The bet end instruction image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** after elapse of a predetermined time from when the CPU **81** starts accepting a bet from each station **4**.

This bet end instruction image instructs the dealer to touch the "bet end" button. When the touch panel **211** detects that the dealer has touched the "bet end" button, the touch panel **211** transmits a bet end instruction signal to the CPU **81** via the communication interface **95**.

A display example on the image display unit **7** of each station **4** is described with reference to FIG. **283**.

An image shown in FIG. **28**B is configured to report to each station **4** that accepting of bets has ended. A player can recognize that the accepting of bets has ended by confirming that a message "NO MORE BETS" is displayed.

A display example on the image display unit **7** of each station **4** is described with reference to FIG. **29**B.

The image shown in FIG. **29**B is configured to report to the station **4** in which a bet was not placed that a bet can be placed on a subsequent game. A player can recognize that a bet on the subsequent game is possible by confirming that a message "ABLE TO PLACE THE BET FOR THE NEXT GAME" is displayed.

Subsequently, with reference to FIGS. **30**B to **34**B, processing performed in the main control unit of a gaming machine according to the present embodiment is described.

FIG. **30**B is a flowchart showing dice game execution processing. Initially, in Step S**1**, the CPU **81** executes bet processing, which is described later in FIG. **31**B, and in Step S**3**, the CPU **81** executes dice rolling processing, which is described later in FIG. **33**B. In Step S**5**, the CPU **81** executes number of dots on dice detection processing, which is

described later in FIG. **34**B and, in Step **7**, executes payout processing corresponding to the number of dots, and then the flow returns to Step **1**.

FIG. **31**B is a flowchart showing bet processing.

In Step S**11**, the CPU **81** displays the bet start instruction image (see FIG. **25**B) on the display screen **210**a of the dealer used display **210**. It should be noted that, whether or not the bet start instruction image is displayed may be determined according to a dealer's level with reference to the instruction image display determination (see FIG. **17**B).

Thus, according to the dealer's level, it becomes possible to determine whether the bet start instruction image is displayed on the display screen **210**a of the dealer used display **210**.

In Step S**13**, the CPU **81** determines whether the bet start instruction signal has been received from the touch panel **211** disposed on the dealer used display **210**. In the case of a NO determination, the CPU **81** returns the processing to Step S**13**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**15**.

In Step S**15**, the CPU **81** transmits the bet start signal to each of the stations **4**. When the bet start signal is received, bet placement can be performed at each station **4**.

In Step S**17**, the CPU **106** determines whether or not a predetermined time has elapsed. More specifically, the CPU **81** starts to measure a predetermined lapse of time t by the timer **131**, compares the predetermined lapse of time t with a predetermined time T**1** stored in the ROM **82**, and determines whether the predetermined lapse of time t measured by the timer **131** has reached the predetermined time T**1**. In the case of a NO determination, the CPU **81** returns the processing to Step S**17**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**19**.

In Step S**19**, the CPU **81** displays the bet end instruction image (see FIG. **27**B) on the display screen **210**a of the dealer used display **210**. It should be noted that, whether or not the bet end instruction image is displayed may be determined according to a dealer's level with reference to the instruction image display determination (see FIG. **17**B).

In Step S**21**, the CPU **81** determines whether the bet end instruction signal has been received from the touch panel **211** disposed on the dealer used display **210**. In the case of a NO determination, the CPU **81** returns the processing to Step S**21**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**23**.

In Step S**23**, the CPU **81** transmits the bet end signal to each station **4**. When the bet end signal is received, bet placement cannot be accepted at each station **4**, and then the CPU **111** inside the station control unit **110** displays an image which reports on the image display unit **7** that an accepting of bet placement has been terminated (FIG. **28**B).

In Step S**25**, the CPU **81** receives bet information from each station **4**. The bet information relates to a normal bet input and a side bet input performed at each station **4**. In addition, the bet information includes information indicating whether bet placement has been performed or not which is included in the bet existence determination table (FIG. **18**B). Upon terminating the processing of Step S**25**, the CPU **81** terminates the bet processing.

With the bet processing of the present embodiment, even an inexperienced dealer can perform start operations for bet placement and end operations according to instructional images.

FIG. **32**B is a flowchart showing subsequent game bet processing.

The subsequent game bet processing is started by the CPU **81** and executed parallel to the dice rolling processing in FIG. **30**B when the bet processing described in FIG. **31**B is terminated. Therefore, placing a bet on the subsequent game becomes possible even during the dice rolling after termination of the bet processing.

In Step S**31**, the CPU **81** determines whether bet placement has been performed for each station **4**. More specifically, the CPU **81** distinguishes stations at which bet placement has been performed from stations at which bet placement has not been performed with reference to the bet existence determination table (FIG. **18**B).

In Step S**33**, the CPU **81** transmits a bet start signal for a subsequent game to the stations **4** at which bet placement has not been performed. When the station **4** receives the bet start signal for a subsequent game, the CPU **111** inside the station control unit **110** displays an image which reports that bet placement for a subsequent game is possible (FIG. **29**B) on the image display unit **7**.

Thus, even during a game, a player who has not participated in the game can place a bet on a subsequent game.

In Step S**35**, the CPU **81** determines whether or not a predetermined time has elapsed. More specifically, the CPU **81** starts to measure a predetermined lapse of time t by the timer **131**, compares the predetermined lapse of time t with a predetermined time T**2** stored in the ROM **82**, and determines whether the predetermined lapse of time t measured by the timer **131** has reached the predetermined time T**2**. In the case of a NO determination, the CPU **81** returns the processing to Step S**35**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**37**.

In Step S**37**, the CPU **81** transmits a bet end signal to the station **4** at which the bet start signal for a subsequent game has been received. When the station **4** receives the bet end signal, the player cannot place a bet on a subsequent game, and the CPU **81** terminates acceptance of bet placement for a subsequent game. Upon terminating the process in Step S**37**, the CPU **81** terminates the subsequent game bet processing.

FIG. **33**B is a flowchart showing dice rolling processing.

In Step S**41**, the CPU **81** extracts an oscillation pattern (combinations of oscillation modes) data from the ROM **82**. More specifically, the CPU **81** refers to an oscillation mode data table (see FIG. **19**B) and extracts the oscillation pattern data at random.

In Step S**43**, the CPU **81** extracts a rendered effect corresponding to an oscillation mode from the ROM **82**. More specifically, the CPU **81** refers to the rendered effect table (see FIG. **20**B) and extracts rendered effect data corresponding to an oscillation mode based on an oscillation pattern data thus extracted in Step S**41**.

In Step S**45**, the CPU **81** oscillates the playing board **3**a and performs a rendered effect. More specifically, the CPU **81** oscillates the playing board **3**a by controlling the oscillation motor **300** based on the oscillation pattern data thus extracted in Step S**41**, and performs a rendered effect with sounds and/or lights based on rendered effect data corresponding to an oscillation mode.

Thus, since a rendered effect corresponding to an oscillation mode of the playing board **3**a is performed, games do not become monotonous and interest therein can be improved. Furthermore, since an oscillation pattern is randomly determined, games do not become monotonous and interest therein can be improved.

In Step S**47**, the CPU **81** ceases oscillation of the playing board **3**a. More specifically, the CPU **81** ceases the oscillation of the playing board **3**a by stopping the oscillation motor **300**. Upon terminating the processing in Step S**47**, the CPU **81** terminates the dice rolling processing.

FIG. **34**B is a flowchart showing number of dots on dice detection processing.

In Step S**71**, the CPU **81** determines whether identification data of the three dice has been received from the IC tag reader **16**. In the case of a YES determination, the CPU **81** advances the processing to Step S**73**, and in the case of a NO determination, the CPU **81** advances the processing to Step S**75**. More specifically, the CPU **81** determines whether there are three sets of identification data, which are identification data **1** to **3**, in the IC tag data table (see FIG. **21**B) received from the IC tag reader **16**. In Step S**73**, the CPU **81** determines the number of dots on the three dice. More specifically, the CPU **81** determines the number of dots of the three dice by analyzing the identification data **1** to **3**. For example, in a case where the identification data is data as shown in FIG. **21**B, the number of dice of which type is red is "six", the number of dice of which type is white is "three", and the number of dice of which type is black is "five". Upon finishing the processing in Step S**73**, the CPU **81** terminates the number of dots detection processing.

In Step S**75**, the CPU **81** receives imaging data from the infrared camera. More specifically, the CPU **81** receives the infrared camera imaging data table (see FIG. **22**B) for each of the dice **70**a, **70**b, and **70**c, from the infrared camera **15**

In Step S**77**, the CPU **81** determines numbers of dots on the dice. More specifically, the CPU **81** determines positions of the dice on the playing board **3**a based on the infrared camera imaging data table (see FIG. **22**B), determines types (colors) of the dice based on the infrared camera imaging data table (see FIG. **22**B) and the dot pattern data classification table (see FIG. **23**B), and determines numbers of the dice based on the infrared camera imaging data table (see FIG. **22**B) and the number of dots-dot pattern data table (see FIG. **24**B). This processing is executed for the three dice **70**a, **70**b, and **70**c. Upon terminating the processing in Step S**77**, the CPU **81** terminates the number of dots detection processing.

Thus, even in a case where, for example, a die is inclined and the number of dots thereof cannot be identified by the IC tag reader **16**, since the number of dots can be determined using the infrared camera **15**, the accuracy of detection and identification of numbers of dots can be improved.

Descriptions regarding the present embodiment have been provided above. Although a case has been described in which the number of dice **70** is three according to the present embodiment, the number of in the present invention is not limited to three and, for example, the number of the dice may be five.

In the present embodiment, although the controller of the present invention is described for a case of being configured from a CPU **81** which the main controller **80** includes and a CPU **111** which the station **4** includes, the controller of the present invention may be configured by only a single CPU.

Although embodiments of the present invention are described above, they are merely exemplified specific examples, and the present invention is not particularly limited thereto. Specific configurations such as each means can modified appropriately. Moreover, it should be understood that the advantages described in association with the embodiments are merely a listing of most preferred advantages, and that the advantages of the present invention are by no means restricted to those described in connection with the embodiments.

Embodiments of the present invention will be described below with reference to the accompanying drawings.

Although described in detail later, as shown in FIG. **1**C, the CPU **81** starts a unit game, accepts a bet during a first predetermined time from each of a plurality of touch panels **35** respectively to a plurality of stations **4** (Step S**100**), when the first predetermined time elapses (Step S**200**), accepts a bet for a subsequent game during a second predetermined time from each of a plurality of the touch panels **35** (Step S**300**), and, when the second predetermined time elapses (Step S**400**), starts a subsequent game (Step S**500**).

FIG. **2**C is a perspective view schematically showing an example of a gaming machine according to the embodiment of this invention. FIG. **3**C is an enlarged view of a playing unit of the gaming machine shown in FIG. **2**C. As shown in FIG. **2**C, a gaming machine **1** according to the present embodiment includes a housing **2** as a main body portion, a playing unit **3** that is provided substantially at the center of the top face of the housing **2** and in which a plurality of dice **70** are rolled and stopped, a plurality of stations **4** disposed so as to surround the playing unit **3**, and a dealer used display **210** that is positioned so as not to be visually recognizable by a player seated at each station **4**. The station **4** includes an image display unit **7**. The player seated at each station **4** can participate in a game by predicting numbers of dots on the dice **70** and performing a normal bet input and a side bet input.

The gaming machine **1** includes a housing **2** as a main body portion, a playing unit **3** that is provided substantially at the center of the top face of the housing **2** and in which a plurality of dice **70** are rolled and stopped, and a plurality of stations **4** (ten in this embodiment) disposed so as to surround the playing unit **3**.

The station **4** include a game media receiving device **5** into which game media such as medals to be used for playing the game are inserted, a control unit **6**, which is configured with multiple control buttons by which a player enters predetermined instructions, and an image display unit **7**, which displays images relating to a bet table. The player may participate in a game by operating the control unit **6** or the like while viewing the image displayed on the image display unit **7**.

A payout opening **8**, from which a player's game media are paid out, are provided on the sides of the housing **2** on which each station **4** is provided. In addition, a speaker **9**, which can output sound, is disposed on the upper right of the image display unit **7** on each of the stations **4**.

A control unit **6** is provided on the side part of the image display unit **7** on each of the stations **4**. As viewed from a position facing the station **4**, in order from the left side are provided a select button **30**, a payout (cash-out) button **31**, and a help button **32**.

The select button **30** is a button that is pressed when confirming a bet operation after the bet operation is complete. Furthermore, in a case other than the bet operation, the button is pressed when a player confirms an input performed.

The payout button **31** is a button which is usually pressed at the end of a game, and when the payout button **31** is pressed, game media corresponding to credits that the player has acquired is paid out from the payout opening **8**.

The help button **32** is a button that is pressed in a case where a method of operating the game is unclear, and upon the help button **32** being pressed, a help screen showing various kinds of operation information is displayed immediately thereafter on the image display unit **7**.

The playing unit **3** is configured so as to allow a plurality of dice to roll and stop. The present embodiment is configured to use three dice **70** (dice **70**a, **70**b, and **70**c) at the playing unit **3**.

A speaker **221** and a lamp **222** are disposed around the playing unit **3**. The speaker **221** performs rendered effects by outputting sounds while the dice **70** are being rolled. The lamp **222** performs rendered effects by emitting lights while the dice **70** are being rolled.

The playing unit **3** includes a playing board **3**a, which is formed to be a circular shape, to roll and then stop the dice **70**. An IC tag reader **16**, which is described later in FIGS. **6**C to **9**C, are provided below the playing board **3**a.

Since the playing board **3**a is formed to be substantially planar, as shown in FIG. **3**C, the dice **70** are rolled by oscillating the playing board **3**a substantially in the vertical direction with respect to the horizontal direction of the playing board **3**a. Then, the dice **70** are stopped after the oscillation of the playing board **3**a ceases. The playing board **3**a is oscillated by a CPU **81** (described later) driving an oscillating motor **300**.

Furthermore, as shown in FIG. **3**C, the playing unit **3** is covered with a cover member **12** of which the entire upper area is made of a transparent acrylic material formed in a hemispherical shape, and regulates the rolling area of the dice **70**. In the present embodiment, an infrared camera **15** is provided at the top of the cover member **12** to detect numbers of dots and the like (such as positions of the dice **70** on the playing board **3**a, types of the dice **70**, and numbers of dots of the dice **70**) of the dice **70**. Furthermore, the cover member **12** is covered with a special film (not shown) which blocks infrared radiation. In this way when the numbers of dots of the dice **70** on which an infrared absorption ink has been applied is detected with the infrared camera **15**, false detection can be prevented that arises, for example, in a case where a blink rate of a light irradiated from a circumference of the playing unit **3** is fast.

FIG. **4**C is an external perspective view of a die **70**. As shown in FIG. **4**C, the die **70** is a cube of which the length of a side is 100 mm.

FIG. **5**C is a development view of the die **70**. As shown in FIG. **5**C, the combinations of two faces opposing each other are "1 and 6", "2 and 5", and "3 and 4".

FIGS. **6**C to **9**C show IC tag readable areas by an IC tag reader **16** disposed below the playing board **3**a.

Here, a way of reading information stored in the IC tag by the IC tag reader **16** is described below.

The IC tag reader **16** is a non-contact type IC tag reader. For example, it is possible to read information stored in the IC tag by RFID (Radio Frequency Identification). The RFID system performs near field communication that reads and writes data stored in semi-conductor devices by an induction field or radio waves in a non-contact manner. In addition, since this technology is known conventionally and is described in Japanese Unexamined Patent Application Publication No. H8-21875, an explanation thereof is abbreviated.

In the present embodiment, a plurality of IC tags is read by a single IC tag reader **16**. Under the abovementioned RFID system, an anti-collision function can be employed which can read a plurality of IC tags by a single reader. The anti-collision function includes FIFO (first in first out) type, multi-access type, and selective type, and communicates with a plurality of the IC tags sequentially. The FIFO type is a mode to communicate with a plurality of the IC tags sequentially in the order that each IC tag enters an area in which an antenna can communicate therewith. The multi-access type is a mode that is able to communicate with all the IC tags, even if there is a plurality of the IC tags simultaneously in the area in which an antenna can communicate with the IC tags. The selective type is a mode that is able to communicate with a specific IC tag among a plurality of the IC tags in the area in which an antenna can communicate therewith. By employing the abovementioned modes, it is possible to read a plurality of the IC tags with a single IC tag reader. In addition, reading the IC tags may not only be done by the non-contact type, but also a contact type. In addition, the IC tag reader is not limited thereto, and anything that is appropriately designed with the object of being read may be employed.

In the present embodiment, a readable area of the IC tag reader **16** is 10 mm in substantially a vertical direction from substantially an entire horizontal face on the playing board **3**a.

With reference to FIG. **6**C, a face of the die **70** (for example, a face of which the number of dots is six) is in contact with the playing board **3**a. Furthermore, the IC tag is embedded substantially at the center of each face of the die **70** (the IC tags for the faces on which the numbers of dots are "3" and "4" are not shown). An IC tag **51** is embedded substantially at the center of a face on which the number of dots is six. An IC tag **52** is embedded substantially at the center of a face on which the number of dots are five. An IC tag **53** is embedded substantially at the center of a face on which the number of dots is one. An IC tag **54** is embedded substantially at the center of a face on which the number of dots is two.

Here, only the IC tag **51** exists in the readable area of the IC tag reader **16**. Therefore, the number of dots (in this case, "one") of a face, opposing the face on which the IC tag **51** is embedded, is determined as the number of dots of the die **70**.

Furthermore, since the number of dots of a face, opposing a face on which an IC tag is embedded, is determined as the number of dots of the die **70**, "one" is stored, as data of the number of dots, in the IC tag **51** on the face of which the number of dots is "six". "Two" is stored, as data of the number of dots, in the IC tag **52** on the face of which the number of dots is "five". "Six" is stored, as data of the number of dots, in the IC tag **53** on the face of which the number of dots is "one". "Five" is stored, as data of the number of dots, in the IC tag **54** on the face of which the number of dots is "two". "Three" is stored, as data of the number of dots, in the IC tag (not shown) on the face of which the number of dots is "four". Finally, "four" is stored, as data of the number of dots, in the IC tag (not shown) on the face of which the number of dots is "three".

Furthermore, as described above, since a side of the die **70** is 10 mm, it is not physically possible for an IC tag reader **16** to detect more than one IC tag with respect to one die.

With reference to FIG. **7**C, a die **70** is inclined. However, since the IC tag **51** still exists in the readable area of the IC tag reader **16**, the number of dots of the die **70** is determined as "one".

With respect to FIG. **8**C, the die **70** is inclined at a greater angle than the case shown in FIG. **7**C. Then, since there is no IC tag which exists in the readable area of the IC tag reader **16**, the IC tag reader **16** cannot detect the number of dots of the die **70**.

With reference to FIG. **9**C, the die **70**b is superimposed on the die **70**a. In this case, neither of the IC tags **55**, **56**, **57**, and **58**, which are embedded in the die **70**b, exists in the readable area of the IC tag reader **16**. Therefore, in this case, the IC tag reader **16** cannot detect the number of dots of the die **70**b.

FIG. **10**C shows a sheet **140** attached to each face of the die **70**.

As shown in FIG. **10**C, on each face of the die **70**, the sheet **140**, to which infrared absorption ink is applied to

identify the number of dots and the type of the die **70**, is provided so as to be covered by a sheet on which the number of dots is printed. According to FIG. **10**C, the infrared absorption ink can be applied to dots **181**, **182**, **183**, **184**, **185**, **186**, and **187**.

The number of dots of the die **70** can be identified by a combination of the dots to which the infrared absorption ink is applied among the dots **184**, **185**, **186**, and **187**. In addition, the type of the die **70** can be identified by a combination of the dots to which the infrared absorption ink is applied among the dots **181**, **182**, and **183**.

FIG. **11**C shows an image in which the dice **70**, which comes to rest on the playing board **3**a, are captured substantially in the vertically upward direction using an infrared camera **15**.

With reference to FIG. **11**C, dots to which the infrared absorption ink is applied on each of the dice **70**a, **70**b, and **70**c are captured in black. The type and the number of dots for each of the dice **70**a, **70**b, and **70**c are determined based on a combination of the dots to which the ink is applied. In addition, the playing board **3**a is formed in a disc shape having a radius a, and each position of the dice **70**a, **70**b, and **70**c is detected as an x component and y component on an x-y coordinate.

FIG. **12**C shows a sheet **150** which is attached to each face of the dice **70**.

As shown in FIG. **12**C, a circular profile **75** having a certain area on each face of the dice **70** in common is depicted by way of applying the infrared absorption ink on each face of the dice **70**. The sheet **150** on which the circular profile **75** is depicted is provided so as to be covered by the abovementioned sheet **140**.

FIG. **13**C shows an image in which the die **70**, which comes to rest at a tilt on a playing board **3**a, is captured substantially in the vertically upward direction using the infrared camera **15**.

With reference to FIG. **13**C, three faces of the die **70** are captured. Therefore, it is necessary to distinguish the number of dots of which face is correct. Consequently, the number of dots having the largest area among the three faces is determined as the face that should be read. In a case of this distinction, the CPU (not shown) in the infrared camera **15** calculates the areas of the circular profiles **75** thus captured, and distinguishes the number of dots of the face on which the circular profile **75** having the largest area among the areas thus calculated is printed as the correct number of dots.

FIG. **14**C shows an example of a display screen displayed on an image display unit. As shown in FIG. **14**C, an image display unit **7** is a touch-panel type of liquid crystal display, on the front surface of which a touch panel **35** is attached, allowing a player to perform selection such as of icons displayed on a liquid crystal screen **36** by contacting the touch panel **35**, e.g., with a finger.

A table-type betting board (a bet screen) **40** for predicting the number of dots of the dice **70** is displayed in a game at a predetermined timing on the image display unit **7**.

A detailed description is now provided regarding the bet screen **40**. On the bet screen **40** are displayed a plurality of normal bet areas **41** and a side bet area **42**. The plurality of normal bet areas **41** includes a normal bet area **41**A, a normal bet area **41**B, a normal bet area **41**C, a normal bet area **41**D, a normal bet area **41**E, a normal bet area **41**F, a normal bet area **41**G, and a normal bet area **41**H. By contacting the touch panel **35**, e.g., with a finger, the normal bet area **41** is designated, and by displaying chips in the normal bet area **41** thus designated, a normal bet operation is performed. Furthermore, by contacting the touch panel **35**, e.g., with a finger, the side bet area **42** is designated, and by displaying chips in the side bet area **42** thus designated, a side bet operation is performed.

A unit bet button **43**, a re-bet button **43**E, a payout result display unit **45**, and a credit amount display unit **46** are displayed at the right side of the side bet area **42** in order from the left side.

The unit bet button unit **43** is a group of buttons that are used by a player to bet chips on the normal bet area **41** and the side bet area **42** designated by the player. The unit bet button unit **43** is configured with four types of buttons including a 1 bet button **43**A, a 5 bet button **43**B, a 10 bet button **43**C, and a 100 bet button **43**D. It should be noted that in the case of an incorrect bet operation, the player can start a bet operation again by touching a re-bet button **43**E.

Firstly, the player designates the normal bet area **41** or the side bet area **42** using a cursor **47** by way of contacting the touch panel **35**, e.g., with a finger. At this time, contacting the 1 bet button **43**A, e.g., with a finger, allows for betting one chip at a time (number of chips to be bet increases one by one in the order of 1, 2, 3, every time the 1 bet button **43**A is contacted, e.g., by a finger). Similarly, when contacting the 5 bet button **43**B, e.g., with a finger, five chips at a time can be bet (number of chips to be bet increases five by five in the order of 5, 10, 15, every time the 5 bet button **43**B is contacted, e.g., by a finger). Similarly, when contacting the 10 bet button **43**C, e.g., with a finger, ten chips at a time can be bet (number of chips to be bet increases ten by ten in the order of 10, 20, 30, every time the 10 bet button **43**C is contacted, e.g., by a finger). Similarly, when contacting the 100 bet button **43**D, e.g., with a finger, a hundred chips at a time can be bet (number of chips to be bet increases hundred by hundred in the order of 100, 200, 300, . . . every time the 100 bet button **43**D is contacted, e.g. by a finger). The number of chips bet up to the current time is displayed as a chip mark **48**, and the number displayed on the chip mark **48** indicates the number of bet chips.

The number of bet chips and payout credit amount for a player in a previous game are displayed in the payout result display unit **45**. The number calculated by subtracting the number of bet chips from the payout credit amount is a newly acquired credit amount for the player in the previous game.

The credit amount display unit **46** displays the credit amount which the player possesses. The credit amount decreases according to the number of bet chips (1 credit amount for 1 chip) when the player bets chips. If the bet chips are entitled to an award and credits are paid out, the credit amount increases in accordance with the number of paid out chips. It should be noted that the game is over when the player's credit amount becomes zero.

The normal bet area **41** in the bet screen **40** is described next. The normal bet areas **41**A and **41**B are portions where the player places a bet on a predicted sum of dots appearing on the dice **70**A to **70**C. In other words, the player selects the normal bet area **41**A if the predicted sum falls in a range of 4 to 10, or the normal bet area **41**B if the predicted sum falls in a range of 11 to 17. Odds are set to 1:1 (2 chips are paid out for 1 chip bet).

The normal bet area **41**C is a portion where the player places a bet, predicting that two dice **70** have the same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1), (2, 2), (3, 3), (4, 4), (5, 5), and (6, 6), and the odds are set to 1:10.

The normal bet area **41**D is a portion where the player places a bet, predicting that all three dice have the same number of dots. In other words, the player wins an award if

one of the combinations occurs, such as (1, 1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), and (6, 6, 6), and the odds are set to 1:30.

The bet area **41**E is a portion where the player places a bet on a predicted number of dots appearing commonly on all three dice. In other words, the player places a bet on one of the combinations of (1, 1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), or (6, 6, 6), and the odds are set to 1:180.

The normal bet area **41**F is where the player places a bet, predicting a total, a summation of dots appearing on the three dice. Odds are set according to the occurrence frequency of the total. For example, if the total is 4 or 17, odds are set to 1:60; if the total is 5 or 16, odds are set to 1:30; if the total is 6 or 15, odds are set to 1:18; if the total is 7 or 14, odds are set to 1:12; if the total is 8 or 13, odds are set to 1:8; if the total is 9 or 12, odds are set to 1:7; and if the total is 10 or 11, odds are set to 1:6.

The bet area **41**G is a portion where the player places a bet on predicted dots appearing on the two dice selected from the three, and the odds are set to 1:5.

The normal bet area **41**H is a region where the player places a bet on the number of dots appearing on the dice **70**, and the odds are set according to the number of dots of the dice **70** matching the predicted number of dots.

FIG. **15**C is a block diagram showing the internal configuration of the gaming machine shown in FIG. **2**C. A main control unit **80** of the gaming machine **1** includes a microcomputer **85**, which is configured with a CPU **81**, ROM **82**, RAM **83**, and a bus **84** that transfers data therebetween.

The CPU **81** is connected with an oscillating motor **300** via an. I/O interface **90**. Furthermore, the CPU **81** is connected with a timer **131**, which can measure time via the I/O interface **90**. In addition, the CPU **81** is connected with a lamp **222** via the I/O interface **90**. The lamp **222** emits various colors of light for performing various types of rendered effects, based on output signals from the CPU **81**. Furthermore, the CPU **81** is connected with a speaker **221** via the I/O interface **90** and a sound output circuit **231**. The speaker **221** emits various sound effects for performing various types of rendered effects, based on output signals from the sound output circuit **231**. Furthermore, the I/O interface **90** is connected with the abovementioned infrared camera **15** and/or the IC tag reader **16**, thereby transmitting and receiving information in relation to the number of dots of the three dice **70**, which comes to rest on the playing board **3**a, between the infrared camera **15** and/or the IC tag reader **16**.

Here, the oscillating motor **300**, the infrared camera **15**, the IC tag reader **16**, the lamp **222**, the sound output circuit **231**, and the speaker **221** are provided within a single composite unit **220**.

In addition, via a communication interface **95** connected to the I/O interface **90**, the main control unit **80** transmits and receives data such as bet information, payout information, and the like to and from each station **4**, as well as data such as bet start instruction images, bet start instruction signals, and the like to and from the dealer used display **210**.

Furthermore, the I/O interface **90** is connected with a history display unit **91**, and the main control unit **80** transmits and receives information in relation to the number of dots on the die, to and from the history display unit **90**.

ROM **82** in the main control unit **80** is configured to store a program for implementing basic functions of the gaming machine **1**; more specifically, a program for controlling various devices which drive the playing unit **3**, a program for controlling each station **4**, and the like, as well as a payout table, data indicating a predetermined time T, data indicating a specific value TT, and the like.

RAM **83** is memory, which temporarily stores various types of data calculated by CPU **81**, and, for example, temporarily stores data bet information transmitted from each station **4**, information on respective number of dots that appear on the dice **70** transmitted from the infrared camera **15** and/or the IC tag reader **16**, data relating to the results of processing executed by CPU **81**, and the like. A jackpot storage area is provided in the RAM **83**. In the jackpot storage area, the data indicating the number of playing media stored cumulatively is stored so as to correspond to each number of dots of matching dice. The data is provided to the station **4** at a predetermined timing, and a jackpot image is displayed.

The CPU **81** controls the oscillating motor **300**, which oscillates the playing unit **3**, based on data and a program stored in the ROM **82** and the RAM **83**, and oscillates the playing board **3**a of the playing unit **3**. Furthermore, after oscillation of the playing board **3**a ceases, a control processing associated with game progression, such as confirmation processing for confirming the number of dots on each of the dice **70** resting on the playing board **3**a.

In addition to the control processing described above, the CPU **81** has a function of executing a game by transmitting and receiving data to and from each station **4** so as to control each station **4**. More specifically, the CPU **81** accepts bet information transmitted from each station **4**. Furthermore, the CPU **81** performs win determination processing based on the number of dots on the dice **70** and the bet information transmitted from each station **4**, and calculates the amount of an award paid out in each station **4** with reference to the payout table stored in the ROM **82**.

FIG. **16**C is a block diagram showing the internal configuration of the station shown in FIG. **2**C. The station **4** includes a main body **100** in which an image display unit **7** and the like are provided, and a game media receiving device **5**, which is attached to the main body **100**. The main body **100** further includes a station control unit **110** and several peripheral devices.

The station control unit **110** includes a CPU **111**, ROM **112**, and RAM **113**.

ROM **112** stores a program for implementing basic functions of the station **4**, other various programs needed to control the station **4**, a data table, and the like.

Moreover, a decision button **30**, a payout button **31**, and a help button **32** provided in the control unit **6** are connected to the CPU **111**, respectively. The CPU **111** controls the execution of various corresponding operations in accordance with manipulation signals, which are generated in response to each button pressed by a player. More specifically, the CPU **111** executes various processing, based on input signals transmitted from the control unit **6** in response to a player's operation which has been inputted, and the data and programs stored in the ROM **112** and RAM **113**. Subsequently, the CPU **111** transmits the results to the CPU **81** in the main control unit **80**.

In addition, the CPU **111** in the main control unit **80** receives instruction signals from the CPU **81**, and controls peripheral devices which configure the station **4**. The CPU **111** performs various kinds of processing based upon the input signals supplied from the control unit **6** and the touch panel **35**, and the data and the programs stored in the ROM **112** and the RAM **113**. Then, the CPU **111** controls the peripheral devices which configure the station **4** based on the results of the processing. It should be noted that the mode whereby processing is performed is set for each processing

depending on the content of the processing. For example, the former approach is applied to payout processing of game media for respective numbers of dots appearing on the dice, and the latter approach is applied to bet operation processing by a player.

Furthermore, a hopper **114**, which is connected to the CPU **111**, pays out a predetermined amount of game media through the payout opening **8**, receiving the instruction signals from the CPU **111**.

Moreover, the image display unit **7** is connected to the CPU **111** via a liquid crystal driving circuit **120**. The liquid crystal driving circuit **120** includes program ROM, image ROM, an image control CPU, work RAM, a video display processor (VDP), video RAM, and the like. Here, the program ROM stores an image control program with respect to the display functions of the image display unit **7**, and various kinds of selection tables. The image ROM stores dot data for creating an image to be displayed on the image display unit **7**, and dot data for displaying a jackpot image, for example. In addition, the image control CPU determines an image to be displayed on the image display unit **7**, selected from the dot data previously stored in the image ROM according to the image control program previously stored in the program ROM based on parameters specified by the CPU **111**. The work RAM is configured as a temporary storage means when executing the image control program by the image control CPU. The VDP forms an image corresponding to the display contents determined by the image control CPU and outputs the resulting image on the image display unit **7**. It should be noted that the video RAM is configured as a temporary storage device used by the VDP for creating an image.

As mentioned above, the touch panel **35** is attached to the front side of the image display unit **7**, and the information related to operation on the touch panel **35** is transmitted to the CPU **111**. The touch panel **35** detects an input operation by the player on a bet screen **40** and the like. More specifically, selection of the normal bet area **41** and the side bet area **42** in the bet screen **40**, manipulation of the bet button unit **43** and the like, are performed by touching the touch panel **35**, and the information thereof is transmitted to the CPU **111**. Then, a player's bet information is stored in the RAM **113** based on the information stored. Furthermore, the bet information is transmitted to the CPU **81** in the main control unit **80**, and stored in a bet information storage area in the RAM **83**.

Moreover, a sound output circuit **126** and a speaker **9** are connected to the CPU **111**. The speaker **9** emits various sound effects for performing various kinds of rendered effects, based on output signals from the sound output circuit **126**. In addition, the game media receiving device **5**, into which game media such as coins or medals are inserted, is connected to the CPU **111** via a data receiving unit **127**. The data receiving unit **127** receives credit signals transmitted from the game media receiving device **5**, and the CPU **111** increases a player's credit amount stored in the RAM **113** based on the credit signals transmitted.

A timer **130**, which can measure time, is connected to the CPU **111**.

A gaming board **60** includes a CPU (Central Processing Unit) **61**, ROM **65** and boot ROM **62**, a card slot **63**S compatible with a memory card **63**, and an IC socket **64**S compatible with a GAL (Generic Array Logic) **64**, which are connected to one another via an internal bus.

The memory card **63** comprises nonvolatile memory such as compact flash (trademark) or the like, which stores a game program and a game system program.

Furthermore, the card slot **63**S has a configuration that allows the memory card **63** to be detachably inserted, and is connected to the CPU **111** via an IDE bus. Such an arrangement allows the kinds or content of the game provided by the station **4** to be changed by performing the following operation. More specifically, the memory card **63** is first extracted from the card slot **63**S, and another game program and another game system program are written to the memory card **63**. Then, the memory card **63** thus rewritten is inserted into the card slot **63**S. In addition, the kinds or content of the games provided by the station **4** can be changed by replacing the memory card **63** storing a game program and a game system program with another memory card **63** storing another game program and game system program. The game program includes a program for advancing a game and the like. The game program also includes a program related to image data and sound data outputted during a game.

The GAL **64** is one type of PLD that has a fixed OR array structure. The GAL **64** includes multiple input ports and output ports and, upon receiving predetermined data via each input port, outputs output data that corresponds to the input data via the corresponding output port. In addition, an IC socket **64**S has a structure that allows the GAL **64** to be detachably mounted, and is connected to the CPU **111** via the PCI bus.

The CPU **61**, the ROM **65**, and the boot ROM **62**, which are connected to one another via the internal bus, are connected to the CPU **111** via the PCI bus. The PCI bus performs signal transmission between the CPU **111** and the gaming board **60**, as well as supplying electric power from the CPU **111** to the gaming board **60**. The ROM **65** stores country identification information and an authentication program. The boot ROM **62** stores a preliminary authentication program, a program (boot code) which instructs the CPU **61** to start up the preliminary authentication program, etc.

The authentication program is a program (forgery check program) for authenticating the game program and the game system program. The authentication program is defined to follow the procedure (authentication procedure) for confirming and authenticating that the game program and the game system program, which are to be acquired after the authentication, have not been forged, i.e. the procedure for authenticating the game program and the game system program. The preliminary authentication program is a program for authenticating the aforementioned authentication program. The preliminary authentication program is defined to follow the procedure for verifying that the authentication program has not been forged, i.e. the procedure for authenticating the authentication program (authentication procedure).

An instruction image display determination table is described with reference to FIG. **17**C.

In Steps S**11** and S**19** of FIG. **31**C, the instruction image display determination table is referred to by the CPU **81** upon determining whether a bet start instruction image or a bet end instruction image is displayed on the display screen **210**a of the dealer used display **210**.

According to this table, "X" is data for indicating that the bet start instruction image and the like is not displayed on the display screen **210**a, and "O" is data for indicating that the bet start instruction image and the like is displayed on the display screen **210**a. For example, in a case in which a dealer belongs to an intermediate level, the bet start instruction image is not displayed on the display screen **210**a, but the bet end instruction image is displayed on the display screen **210**a. In addition, this table is stored in the ROM **82**.

The bet existence determination table is described with reference to FIG. **18**C.

The CPU **81** refers to this bet existence determination table upon determining for each station **4** whether a bet operation is performed at each station **4** in Step S**31** of FIG. **32**C.

Data indicating whether the bet operation has been performed or not at each station number is stored in this table. "P" is data indicating that a bet operation was performed, and "A" is data indicating that a bet operation was not performed. In addition, this table is updated in every game, and stored in the RAM **83**.

An oscillation mode data table is described with reference to FIG. **19**C.

The CPU **81** refers to this oscillation mode data table upon determining combination patterns of the oscillation modes of the playing board **3**a. In addition, this table is stored in the ROM **82**.

According to this table, in a case of a pattern **3**, the roll of dice **70** is performed in the order of a small oscillation for six seconds, a large oscillation for four seconds, and a subtle oscillation for five seconds. Here, the order of oscillation amplitude of the playing board **3**a is equal to large oscillation>small oscillation>subtle oscillation. It should be noted that the oscillation speed for the large oscillation, the small oscillation, and the subtle oscillation are all the same speed. Furthermore, the small oscillation is enough to be able to roll a die, the large oscillation is enough to jump a die, and the subtle oscillation is enough to level off a die that comes to rest at a tilt.

A rendered effect table is described with reference to FIG. **20**C.

The CPU **81** refers to this rendered effect table upon determining rendered effect data in response to an oscillation pattern of the playing board **3**a in Step S**43** of FIG. **33**C. In addition, this table is stored in the ROM **82**.

According to this table, oscillation modes correspond to sound types and, for example, in the case of a large oscillation, "sound **2**" is determined. For example, in the case of "sound **2**", the sound indicating that a die jumps is outputted from the speaker **221**.

It should be noted that, by way of associating an oscillation mode with a certain type of emitted light, rendered effects with a light emitting mode associated with an oscillation mode may be performed by lighting or flashing of the lamp **222**.

An IC tag data table is described with reference to FIG. **21**C.

The IC tag data table is a table showing data as identification data **1** to **3** which is created by the CPU **81** based on the results of the type of dice and the number of dots on the dice, when information stored in IC tags embedded in the dice **70**a, **70**b, and **70**c is detected by the IC tag reader **16**.

According to this table, for example, when an IC tag embedded in each die is detected in the order of **70**c, **70**a, and **70**b, by the IC tag reader **16**, the die **70**c is associated with identification data **1** of which the type is "red" and the number of dots is "six", the die **70**a is associated with identification data **2** of which the type is "white" and the number of dots is "three", and the die **70**b is associated with identification data **3** of which the type is "black" and the number of dots is "five".

On the other hand, when three dice are not detected, for example, in a case where only two dice are detected, identification data is created for only 2 sets, identification data **1** and **2**.

In addition, the data table is transmitted from the IC tag reader **16** to the CPU **81**, and then the CPU **81** receives it to analyze the number of dots on a die and the like.

An infrared camera capturing data table is described with reference to FIG. **22**C.

The infrared camera capturing data table is a data table showing dot patterns of the infrared absorption inks applied to the dice **70** and location data of the dice **70** on the playing board **3**a.

For example, regarding the die **70**a shown in FIG. **11**C, in the infrared camera capturing data table, the CPU (not shown) inside the infrared camera **15** stores −50 for X and 55 for Y as location data, stores "O" for **181**, **182**, **184**, **186**, and **187**, to which the infrared absorption inks are being applied, and stores "X" for **183** and **185**, which are not being applied. The same is true of the dice **70**b and **70**c.

On the other hand, as shown in FIG. **13**C, in a case where a plurality of faces of the dice **70** is captured, the number of dots cannot be specified uniquely. In this case, the CPU (not shown) inside the infrared camera **15** calculates the area of the profiles **75** on the plurality of faces thus captured, and generates the infrared camera capturing data table based on the dot patterns on the face that has a maximum area.

Therefore, even if the dice **70** come to rest at a tilt and a plurality of faces of the dice **70** is captured, the number of dots can be specified uniquely.

In addition, this data table is transmitted from the infrared camera **15** to the CPU **81**, and then the CPU **81** receives it to analyze the number of dots on a die and the like.

A dot pattern data classification table is described with reference to FIG. **23**C.

According to this table, colors as the classification for the dice **70** are set so as to correspond to dot combinations to which the infrared absorption ink is applied, among the abovementioned dots **181** to **183** in FIG. **10**C. "O" indicates that the infrared absorption ink is applied to the dot, and "X" indicates that the infrared absorption ink is not applied to the dot.

For example, in a case where the infrared camera capturing data table described in FIG. **22**C is transmitted to the CPU **81**, the CPU **81** determines the classification of the dice **70** as "red" by comparing the infrared camera capturing data table with the dot pattern data classification table.

A number of dots-dot pattern data table is described with reference to FIG. **24**C.

According to this table, numbers as the number of dots on the dice **70** are set so as to correspond to dot combinations to which the infrared absorption ink is applied, among the abovementioned dots **184** to **187** in FIG. **10**C. "O" indicates that the infrared absorption ink is applied to the dot, and "X" indicates that the infrared absorption ink is not applied to the dot.

For example, in a case where the infrared camera capturing data table shown in FIG. **22**C is transmitted from the infrared camera **15** to the CPU **81**, the CPU **81** determines the number of dots on the dice **70** as "five" by comparing the infrared camera capturing data table thus received with the dot pattern data classification table.

A bet start instruction image is described with reference to FIG. **25**C.

The bet start instruction image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** before the CPU **81** accepts a bet from each station **4**.

This bet start instruction image instructs a dealer to touch a "bet start" button. When a touch panel **211** detects that the

dealer has touched the "bet start" button, the touch panel **211** transmits a bet start instruction signal to the CPU **81** via a communication interface **95**.

A bet end not recommended image is described with reference to FIG. **26**C.

This bet end not recommended image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** while the CPU **81** accepts a bet from each station **4**.

This bet end not recommended image instructs the dealer not to touch a "bet end" button.

A bet end instruction image is described with reference to FIG. **27**C.

The bet end instruction image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** after elapse of a predetermined time from when the CPU **81** starts accepting a bet from each station **4**.

This bet end instruction image instructs the dealer to touch the "bet end" button. When the touch panel **211** detects that the dealer has touched the "bet end" button, the touch panel **211** transmits a bet end instruction signal to the CPU **81** via the communication interface **95**.

A display example on the image display unit **7** of each station **4** is described with reference to FIG. **28**C.

An image shown in FIG. **28**C is configured to report to each station **4** that accepting of bets has ended. A player can recognize that the accepting of bets has ended by confirming that a message "NO MORE BETS" is displayed.

A display example on the image display unit **7** of each station **4** is described with reference to FIG. **29**C.

The image shown in FIG. **29**C is configured to report to the station **4** in which a bet was not placed that a bet can be placed on a subsequent game. A player can recognize that a bet on the subsequent game is possible by confirming that a message "ABLE TO PLACE THE BET FOR THE NEXT GAME" is displayed.

Subsequently, with reference to FIGS. **30**C to **34**C, processing performed in the main control unit of a gaming machine according to the present embodiment is described.

FIG. **30**C is a flowchart showing dice game execution processing. Initially, in Step S**1**, the CPU **81** executes bet processing, which is described later in FIG. **31**C, and in Step S**3**, the CPU **81** executes dice rolling processing, which is described later in FIG. **33**C. In Step S**5**, the CPU **81** executes number of dots on dice detection processing, which is described later in FIG. **34**C and, in Step **7**, executes payout processing corresponding to the number of dots, and then the flow returns to Step **1**.

FIG. **31**C is a flowchart showing bet processing.

In Step S**11**, the CPU **81** displays the bet start instruction image (see FIG. **25**C) on the display screen **210**a of the dealer used display **210**. It should be noted that, whether or not the bet start instruction image is displayed may be determined according to a dealer's level with reference to the instruction image display determination (see FIG. **17**C).

Thus, according to the dealer's level, it becomes possible to determine whether the bet start instruction image is displayed on the display screen **210**a of the dealer used display **210**.

In Step S**13**, the CPU **81** determines whether the bet start instruction signal has been received from the touch panel **211** disposed on the dealer used display **210**. In the case of a NO determination, the CPU **81** returns the processing to Step S**13**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**15**.

In Step S**15**, the CPU **81** transmits the bet start signal to each of the stations **4**. When the bet start signal is received, bet placement can be performed at each station **4**.

In Step S**17**, the CPU **106** determines whether or not a predetermined time has elapsed. More specifically, the CPU **81** starts to measure a predetermined lapse of time t by the timer **131**, compares the predetermined lapse of time t with a predetermined time T**1** stored in the ROM **82**, and determines whether the predetermined lapse of time t measured by the timer **131** has reached the predetermined time T**1**. In the case of a NO determination, the CPU **81** returns the processing to Step S**17**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**19**.

In Step S**19**, the CPU **81** displays the bet end instruction image (see FIG. **27**C) on the display screen **210**a of the dealer used display **210**. It should be noted that, whether or not the bet end instruction image is displayed may be determined according to a dealer's level with reference to the instruction image display determination (see FIG. **17**C).

In Step S**21**, the CPU **81** determines whether the bet end instruction signal has been received from the touch panel **211** disposed on the dealer used display **210**. In the case of a NO determination, the CPU **81** returns the processing to Step S**21**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**23**.

In Step S**23**, the CPU **81** transmits the bet end signal to each station **4**. When the bet end signal is received, bet placement cannot be accepted at each station **4**, and then the CPU **111** inside the station control unit **110** displays an image which reports on the image display unit **7** that an accepting of bet placement has been terminated (FIG. **28**C).

In Step S**25**, the CPU **81** receives bet information from each station **4**. The bet information relates to a normal bet input and a side bet input performed at each station **4**. In addition, the bet information includes information indicating whether bet placement has been performed or not which is included in the bet existence determination table (FIG. **18**C). Upon terminating the processing of Step S**25**, the CPU **81** terminates the bet processing.

With the bet processing of the present embodiment, even an inexperienced dealer can perform start operations for bet placement and end operations according to instructional images.

FIG. **32**C is a flowchart showing subsequent game bet processing.

The subsequent game bet processing is started by the CPU **81** and executed parallel to the dice rolling processing in FIG. **30**C when the bet processing described in FIG. **31**C is terminated. Therefore, placing a bet on the subsequent game becomes possible even during the dice rolling after termination of the bet processing.

In Step S**31**, the CPU **81** determines whether bet placement has been performed for each station **4**. More specifically, the CPU **81** distinguishes stations at which bet placement has been performed from stations at which bet placement has not been performed with reference to the bet existence determination table (FIG. **18**C).

In Step S**33**, the CPU **81** transmits a bet start signal for a subsequent game to the stations **4** at which bet placement has not been performed. When the station **4** receives the bet start signal for a subsequent game, the CPU **111** inside the station control unit **110** displays an image which reports that bet placement for a subsequent game is possible (FIG. **29**C) on the image display unit **7**.

Thus, even during a game, a player who has not participated in the game can place a bet on a subsequent game.

In Step S**35**, the CPU **81** determines whether or not a predetermined time has elapsed. More specifically, the CPU **81** starts to measure a predetermined lapse of time t by the timer **131**, compares the predetermined lapse of time t with

a predetermined time T2 stored in the ROM **82**, and determines whether the predetermined lapse of time t measured by the timer **131** has reached the predetermined time T2. In the case of a NO determination, the CPU **81** returns the processing to Step S**35**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**37**.

In Step S**37**, the CPU **81** transmits a bet end signal to the station **4** at which the bet start signal for a subsequent game has been received. When the station **4** receives the bet end signal, the player cannot place a bet on a subsequent game, and the CPU **81** terminates acceptance of bet placement for a subsequent game. Upon terminating the process in Step S**37**, the CPU **81** terminates the subsequent game bet processing.

FIG. **33**C is a flowchart showing dice rolling processing.

In Step S**41**, the CPU **81** extracts an oscillation pattern (combinations of oscillation modes) data from the ROM **82**. More specifically, the CPU **81** refers to an oscillation mode data table (see FIG. **19**C) and extracts the oscillation pattern data at random.

In Step S**43**, the CPU **81** extracts a rendered effect corresponding to an oscillation mode from the ROM **82**. More specifically, the CPU **81** refers to the rendered effect table (see FIG. **20**C) and extracts rendered effect data corresponding to an oscillation mode based on an oscillation pattern data thus extracted in Step S**41**.

In Step S**45**, the CPU **81** oscillates the playing board **3**a and performs a rendered effect. More specifically, the CPU **81** oscillates the playing board **3**a by controlling the oscillation motor **300** based on the oscillation pattern data thus extracted in Step S**41**, and performs a rendered effect with sounds and/or lights based on rendered effect data corresponding to an oscillation mode.

Thus, since a rendered effect corresponding to an oscillation mode of the playing board **3**a is performed, games do not become monotonous and interest therein can be improved. Furthermore, since an oscillation pattern is randomly determined, games do not become monotonous and interest therein can be improved.

In Step S**47**, the CPU **81** ceases oscillation of the playing board **3**a. More specifically, the CPU **81** ceases the oscillation of the playing board **3**a by stopping the oscillation motor **300**. Upon terminating the processing in Step S**47**, the CPU **81** terminates the dice rolling processing.

FIG. **34**C is a flowchart showing number of dots on dice detection processing.

In Step S**71**, the CPU **81** determines whether identification data of the three dice has been received from the IC tag reader **16**. In the case of a YES determination, the CPU **81** advances the processing to Step S**73**, and in the case of a NO determination, the CPU **81** advances the processing to Step S**75**. More specifically, the CPU **81** determines whether there are three sets of identification data, which are identification data **1** to **3**, in the IC tag data table (see FIG. **21**C) received from the IC tag reader **16**. In Step S**73**, the CPU **81** determines the number of dots on the three dice. More specifically, the CPU **81** determines the number of dots of the three dice by analyzing the identification data **1** to **3**. For example, in a case where the identification data is data as shown in FIG. **21**C, the number of dice of which type is red is "six", the number of dice of which type is white is "three", and the number of dice of which type is black is "five". Upon finishing the processing in Step S**73**, the CPU **81** terminates the number of dots detection processing.

In Step S**75**, the CPU **81** receives capturing data from the infrared camera. More specifically, the CPU **81** receives the infrared camera capturing data table (see FIG. **22**C) for each of the dice **70**a, **70**b, and **70**c, from the infrared camera **15**

In Step S**77**, the CPU **81** determines numbers of dots on the dice. More specifically, the CPU **81** determines positions of the dice on the playing board **3**a based on the infrared camera capturing data table (see FIG. **22**C), determines types (colors) of the dice based on the infrared camera capturing data table (see FIG. **22**C) and the dot pattern data classification table (see FIG. **23**C), and determines numbers of the dice based on the infrared camera capturing data table (see FIG. **22**C) and the number of dots-dot pattern data table (see FIG. **24**C). This processing is executed for the three dice **70**a, **70**b, and **70**c. Upon terminating the processing in Step S**77**, the CPU **81** terminates the number of dots detection processing.

Thus, even in a case where, for example, a die is inclined and the number of dots thereof cannot be identified by the IC tag reader **16**, since the number of dots can be determined using the infrared camera **15**, the accuracy of detection and identification of numbers of dots can be improved.

Descriptions regarding the present embodiment have been provided above. Although a case has been described in which the number of dice **70** is three according to the present embodiment, the number of in the present invention is not limited to three and, for example, the number of the dice may be five.

In the present embodiment, although the controller of the present invention is described for a case of being configured from a CPU **81** which the main controller **80** includes and a CPU **111** which the station **4** includes, the controller of the present invention may be configured by only a single CPU.

Although embodiments of the present invention are described above, they are merely exemplified specific examples, and the present invention is not particularly limited thereto. Specific configurations such as each means can modified appropriately. Moreover, it should be understood that the advantages described in association with the embodiments are merely a listing of most preferred advantages, and that the advantages of the present invention are by no means restricted to those described in connection with the embodiments.

Embodiments of the present invention will be described below with reference to the accompanying drawings.

Although details are described later, as shown in FIG. **1**D, a CPU **81** sets a bet time for accepting a bet by a plurality of touch panels **35** that are provided to a plurality of stations **4** (Step S**100**), accepts a bet from each of the plurality of touch panels **35** (Step S**200**), determines whether a game start signal has been received from a station **4** provided with a touch panel **35** that has received a bet among the plurality of touch panels **35** (Step S**300**), shortens the bet time in a case of accepting the game start signal (Step S**400**), determines whether or not the bet time has elapsed (Step S**500**), and starts a game when the bet time has elapsed (Step S**600**).

FIG. **2**D is a perspective view schematically showing an example of a gaming machine according to the embodiment of this invention. FIG. **3**D is an enlarged view of a playing unit of the gaming machine shown in FIG. **2**D. As shown in FIG. **2**D, a gaming machine **1** according to the present embodiment includes a housing **2** as a main body portion, a playing unit **3** that is provided substantially at the center of the top face of the housing **2** and in which a plurality of dice **70** are rolled and stopped, a plurality of stations **4** disposed so as to surround the playing unit **3**, and a dealer used display **210** that is positioned so as not to be visually recognizable by a player seated at each station **4**. The station **4** includes an image display unit **7**. The player seated at each

station **4** can participate in a game by predicting numbers of dots on the dice **70** and performing a normal bet input and a side bet input.

The gaming machine **1** includes a housing **2** as a main body portion, a playing unit **3** that is provided substantially at the center of the tap face of the housing **2** and in which a plurality of dice **70** are rolled and stopped, and a plurality of stations **4** (ten in this embodiment) disposed so as to surround the playing unit **3**.

The station **4** include a game media receiving device **5** into which game media such as medals to be used for playing the game are inserted, a control unit **6**, which is configured with multiple control buttons by which a player enters predetermined instructions, and an image display unit **7**, which displays images relating to a bet table. The player may participate in a game by operating the control unit **6** or the like while viewing the image displayed on the image display unit **7**.

A payout opening **8**, from which a player's game media are paid out, are provided on the sides of the housing **2** on which each station **4** is provided. In addition, a speaker **9**, which can output sound, is disposed on the upper right of the image display unit **7** on each of the stations **4**.

A control unit **6** is provided on the side part of the image display unit **7** on each of the stations **4**. As viewed from a position facing the station **4**, in order from the left side are provided a select button **30**, a payout (cash-out) button **31**, and a help button **32**.

The select button **30** is a button that is pressed when confirming a bet operation after the bet operation is complete. Furthermore, in a case other than the bet operation, the button is pressed when a player confirms an input performed.

The payout button **31** is a button which is usually pressed at the end of a game, and when the payout button **31** is pressed, game media corresponding to credits that the player has acquired is paid out from the payout opening **8**.

The help button **32** is a button that is pressed in a case where a method of operating the game is unclear, and upon the help button **32** being pressed, a help screen showing various kinds of operation information is displayed immediately thereafter on the image display unit **7**.

The playing unit **3** is configured so as to allow a plurality of dice to roll and stop. The present embodiment is configured to use three dice **70** (dice **70**a, **70**b, and **70**c) at the playing unit **3**.

A speaker **221** and a lamp **222** are disposed around the playing unit **3**. The speaker **221** performs rendered effects by outputting sounds while the dice **70** are being rolled. The lamp **222** performs rendered effects by emitting lights while the dice **70** are being rolled.

As shown in FIG. **3**D, the playing unit **3** includes a playing board **3**a, which is formed to be a circular shape, and causes the dice **70** to roll and ultimately come to rest. An IC tag reader **16**, which is described later in FIGS. **6**D to **9**D, are provided below the playing board **3**a.

Since the playing board **3**a is formed to be substantially planar, the dice **70** are rolled by oscillating the playing board **3**a substantially in the vertical direction with respect to the horizontal direction of the playing board **3**a. Then, the dice **70** are stopped after the oscillation of the playing board **3**a ceases. The playing board **3**a is oscillated by a CPU **81** (described later) driving an oscillating motor **300**.

Furthermore, as shown in FIG. **3**D, the playing unit **3** is covered with a cover member **12** of which the entire upper area is made of a transparent acrylic material formed in a hemispherical shape, and regulates the rolling area of the dice **70**. In the present embodiment, an infrared camera **15** is provided at the top of the cover member **12** to detect numbers of dots and the like (such as positions of the dice **70** on the playing board **3**a, types of the dice **70**, and numbers of dots of the dice **70**) of the dice **70**. Furthermore, the cover member **12** is covered with a special film (not shown) which blocks infrared radiation. In this way when the numbers of dots of the dice **70** on which an infrared absorption ink has been applied is detected with the infrared camera **15**, false detection can be prevented that arises, for example, in a case where a blink rate of a light irradiated from a circumference of the playing unit **3** is fast.

FIG. **4**D is an external perspective view of a die **70**. As shown in FIG. **4**D, the die **70** is a cube of which the length of a side is 100 mm.

FIG. **5**D is a development view of the die **70**. As shown, in FIG. **5**D, the combinations of two faces opposing each other are "1 and 6", "2 and 5", and "3 and 4".

FIGS. **6**D to **9**D show IC tag readable areas by an IC tag reader **16** disposed below the playing board **3**a.

Here, a way of reading information stored in the IC tag by the IC tag reader **16** is described below.

The IC tag reader **16** is a non-contact type IC tag reader. For example, it is possible to read information stored in the IC tag by RFID (Radio Frequency Identification). The RFID system performs near field communication that reads and writes data stored in semi-conductor devices by an induction field or radio waves in a non-contact manner. In addition, since this technology is known conventionally and is described in Japanese Unexamined Patent Application Publication No. H8-21875, an explanation thereof is abbreviated.

In the present embodiment, a plurality of IC tags is read by a single IC tag reader **16**. Under the abovementioned RFID system, an anti-collision function can be employed which can read a plurality of IC tags by a single reader. The anti-collision function includes FIFO (first in first out) type, multi-access type, and selective type, and communicates with a plurality of the IC tags sequentially. The FIFO type is a mode to communicate with a plurality of the IC tags sequentially in the order that each IC tag enters an area in which an antenna can communicate therewith. The multi-access type is a mode that is able to communicate with all the IC tags, even if there is a plurality of the IC tags simultaneously in the area in which an antenna can communicate with the IC tags. The selective type is a mode that is able to communicate with a specific IC tag among a plurality of the IC tags in the area in which an antenna can communicate therewith. By employing the abovementioned modes, it is possible to read a plurality of the IC tags with a single IC tag reader. In addition, reading the IC tags may not only be done by the non-contact type, but also a contact type. In addition, the IC tag reader is not limited thereto, and anything that is appropriately designed with the object of being read may be employed.

In the present embodiment, a readable area of the IC tag reader **16** is 10 mm in substantially a vertical direction from substantially an entire horizontal face on the playing board **3**a.

With reference to FIG. **6**D, a face of the die **70** (for example, a face of which the number of dots is six) is in contact with the playing board **3**a. Furthermore, the IC tag is embedded substantially at the center of each face of the die **70** (the IC tags for the faces on which the numbers of dots are "3" and "4" are not shown). An IC tag **51** is embedded substantially at the center of a face on which the number of dots is six. An IC tag **52** is embedded substan-

tially at the center of a face on which the number of dots are five. An IC tag **53** is embedded substantially at the center of a face on which the number of dots is one. An IC tag **54** is embedded substantially at the center of a face on which the number of dots is two.

Here, only the IC tag **51** exists in the readable area of the IC tag reader **16**. Therefore, the number of dots (in this case, "one") of a face, opposing the face on which the IC tag **51** is embedded, is determined as the number of dots of the die **70**.

Furthermore, since the number of dots of a face, opposing a face on which an IC tag is embedded, is determined as the number of dots of the die **70**, "one" is stored, as data of the number of dots, in the IC tag **51** on the face of which the number of dots is "six". "Two" is stored, as data of the number of dots, in the IC tag **52** on the face of which the number of dots is "five". "Six" is stored, as data of the number of dots, in the IC tag **53** on the face of which the number of dots is "one". "Five" is stored, as data of the number of dots, in the IC tag **54** on the face of which the number of dots is "two". "Three" is stored, as data of the number of dots, in the IC tag (not shown) on the face of which the number of dots is "four". Finally, "four" is stored, as data of the number of dots, in the IC tag (not shown) on the face of which the number of dots is "three".

Furthermore, as described above, since a side of the die **70** is 10 mm, it is not physically possible for an IC tag reader **16** to detect more than one IC tag with respect to one die.

With reference to FIG. **7**D, a die **70** is inclined. However, since the IC tag **51** still exists in the readable area of the IC tag reader **16**, the number of dots of the die **70** is determined as "one".

With respect to FIG. **8**D, the die **70** is inclined at a greater angle than the case shown in FIG. **7**D. Then, since there is no IC tag which exists in the readable area of the IC tag reader **16**, the IC tag reader **16** cannot detect the number of dots of the die **70**.

With reference to FIG. **9**D, the die **70**b is superimposed on the die **70**a. In this case, neither of the IC tags **55**, **56**, **57**, and **58**, which are embedded in the die **70**b, exists in the readable area of the IC tag reader **16**. Therefore, in this case, the IC tag reader **16** cannot detect the number of dots of the die **70**b.

FIG. **10**D shows a sheet **140** attached to each face of the die **70**.

As shown in FIG. **10**D, on each face of the die **70**, the sheet **140**, to which infrared absorption ink is applied to identify the number of dots and the type of the die **70**, is provided so as to be covered by a sheet on which the number of dots is printed. According to FIG. **10**D, the infrared absorption ink can be applied to dots **181**, **182**, **183**, **184**, **185**, **186**, and **187**.

The number of dots of the die **70** can be identified by a combination of the dots to which the infrared absorption ink is applied among the dots **184**, **185**, **186**, and **187**. In addition, the type of the die **70** can be identified by a combination of the dots to which the infrared absorption ink is applied among the dots **181**, **182**, and **183**.

FIG. **11**D shows an image in which the dice **70**, which comes to rest on the playing board **3**a, are captured substantially in the vertically upward direction using an infrared camera **15**.

With reference to FIG. **11**D, dots to which the infrared absorption ink is applied on each of the dice **70**a, **70**b, and **70**c are captured in black. The type and the number of dots for each of the dice **70**a, **70**b, and **70**c are determined based on a combination of the dots to which the ink is applied. In addition, the playing board **3**a is formed in a disc shape having a radius a, and each position of the dice **70**a, **70**b, and **70**c is detected as an x component and y component on an x-y coordinate.

FIG. **12**D shows a sheet **150** which is attached to each face of the dice **70**.

As shown in FIG. **12**D, a circular profile **75** having a certain area on each face of the dice **70** in common is depicted by way of applying the infrared absorption ink on each face of the dice **70**. The sheet **150** on which the circular profile **75** is depicted is provided so as to be covered by the abovementioned sheet **140**.

FIG. **13**D shows an image in which the die **70**, which comes to rest at a tilt on a playing board **3**a, is captured substantially in the vertically upward direction using the infrared camera **15**.

With reference to FIG. **13**D, three faces of the die **70** are captured. Therefore, it is necessary to distinguish the number of dots of which face is correct. Consequently, the number of dots having the largest area among the three faces is determined as the face that should be read. In a case of this distinction, the CPU (not shown) in the infrared camera **15** calculates the areas of the circular profiles **75** thus captured, and distinguishes the number of dots of the face on which the circular profile **75** having the largest area among the areas thus calculated is printed as the correct number of dots.

FIG. **14**D shows an example of a display screen displayed on an image display unit. As shown in FIG. **14**D, an image display unit **7** is a touch-panel type of liquid crystal display, on the front surface of which a touch panel **35** is attached, allowing a player to perform selection such as of icons displayed on a liquid crystal screen **36** by contacting the touch panel **35**, e.g., with a finger.

A table-type betting board (a bet screen) **40** for predicting the number of dots of the dice **70** is displayed in a game at a predetermined timing on the image display unit **7**.

A detailed description is now provided regarding the bet screen **40**. On the bet screen **40** are displayed a plurality of normal bet areas **41** and a side bet area **42**. The plurality of normal bet areas **41** includes a normal bet area **41**A, a normal bet area **41**B, a normal bet area **41**C, a normal bet area **41**D, a normal bet area **41**E, a normal bet area **41**F, a normal bet area **41**G, and a normal bet area **41**H. By contacting the touch panel **35**, e.g., with a finger, the normal bet area **41** is designated, and by displaying chips in the normal bet area **41** thus designated, a normal bet operation is performed. Furthermore, by contacting the touch panel **35**, e.g., with a finger, the side bet area **42** is designated, and by displaying chips in the side bet area **42** thus designated, a side bet operation is performed.

A unit bet button **43**, a re-bet button **43**E, a payout result display unit **45**, a credit amount display unit **46**, and a start button **49** are displayed at the right side of the side bet area **42** in order from the left side.

The unit bet button unit **43** is a group of buttons that are used by a player to bet chips on the normal bet area **41** and the side bet area **42** designated by the player. The unit bet button unit **43** is configured with four types of buttons including a 1 bet button **43**A, a 5 bet button **43**B, a 10 bet button **43**C, and a 100 bet button **43**D. It should be noted that in the case of an incorrect bet operation, the player can start a bet operation again by touching a re-bet button **43**E. Furthermore, the start button **49** is a button for transmitting a game start signal when a player ends a bet operation. The bet operation of the player is performed within a predetermined bet time (for example, 60 seconds). More specifically, at first, the player designates the normal bet area **41** or the side bet area **42** using a cursor **47** by way of contacting the

touch panel **35**, e.g., with a finger. At this time, contacting the 1 bet button **43**A, e.g., with a finger, allows for betting one chip at a time (number of chips to be bet increases one by one in the order of 1, 2, 3, every time the 1 bet button **43**A is contacted, e.g., by a finger). Similarly, when contacting the 5 bet button **43**B, e.g., with a finger, five chips at a time can be bet (number of chips to be bet increases five by five in the order of 5, 10, 15, every time the 5 bet button **43**B is contacted, e.g., by a finger). Similarly, when contacting the 10 bet button **43**C, e.g., with a finger, ten chips at a time can be bet (number of chips to be bet increases ten by ten in the order of 10, 20, 30, every time the 10 bet button **43**C is contacted, e.g., by a finger). Similarly, when contacting the 100 bet button **43**D, e.g., with a finger, a hundred chips at a time can be bet (number of chips to be bet increases hundred by hundred in the order of 100, 200, 300, . . . every time the 100 bet button **43**D is contacted, e.g. by a finger). The number of chips bet up to the current time is displayed as a chip mark **48**, and the number displayed on the chip mark **48** indicates the number of bet chips. Then, the player ends the bet operation by contacting the start button **49**.

The number of bet chips and payout credit amount for a player in a previous game are displayed in the payout result display unit **45**. The number calculated by subtracting the number of bet chips from the payout credit amount is a newly acquired credit amount for the player in the previous game.

The credit amount display unit **46** displays the credit amount which the player possesses. The credit amount decreases according to the number of bet chips (1 credit amount for 1 chip) when the player bets chips. If the bet chips are entitled to an award and credits are paid out, the credit amount increases in accordance with the number of paid out chips. It should be noted that the game is over when the player's credit amount becomes zero.

The normal bet area **41** in the bet screen **40** is described next. The normal bet areas **41**A and **41**B are portions where the player places a bet on a predicted sum of dots appearing on the dice **70**A to **70**C. In other words, the player selects the normal bet area **41**A if the predicted sum falls in a range of 4 to 10, or the normal bet area **41**B if the predicted sum falls in a range of 11 to 17. Odds are set to 1:1 (2 chips are paid out for 1 chip bet).

The normal bet area **41**C is a portion where the player places a bet, predicting that two dice **70** have the same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1), (2, 2), (3, 3), (4, 4), (5, 5), and (6, 6), and the odds are set to 1:10.

The normal bet area **41**D is a portion where the player places a bet, predicting that all three dice have the same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), and (6, 6, 6), and the odds are set to 1:30.

The bet area **41**E is a portion where the player places a bet on a predicted number of dots appearing commonly on all three dice. In other words, the player places a bet on one of the combinations of (1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), or (6, 6, 6), and the odds are set to 1:180.

The normal bet area **41**F is where the player places a bet, predicting a total, a summation of dots appearing on the three dice. Odds are set according to the occurrence frequency of the total. For example, if the total is 4 or 17, odds are set to 1:60; if the total is 5 or 16, odds are set to 1:30; if the total is 6 or 15, odds are set to 1:18; if the total is 7 or 14, odds are set to 1:12; if the total is 8 or 13, odds are set to 1:8; if the total is 9 or 12, odds are set to 1:7; and if the total is 10 or 11, odds are set to 1:6.

The bet area **41**G is a portion where the player places a bet on predicted dots appearing on the two dice selected from the three, and the odds are set to 1:5.

The normal bet area **41**H is a region where the player places a bet on the number of dots appearing on the dice **70**, and the odds are set according to the number of dots of the dice **70** matching the predicted number of dots.

FIG. **15**D is a block diagram showing the internal configuration of the gaming machine shown in FIG. **2**D. A main control unit **80** of the gaming machine **1** includes a microcomputer **85**, which is configured with a CPU **81**, ROM **82**, RAM **83**, and a bus **84** that transfers data therebetween.

The CPU **81** is connected with an oscillating motor **300** via an I/O interface **90**. In addition, the CPU **81** is connected with a lamp **222** via the I/O interface **90**. The lamp **222** emits various colors of light for performing various types of rendered effects, based on output signals from the CPU **81**. Furthermore, the CPU **81** is connected with a speaker **221** via the I/O interface **90** and a sound output circuit **231**. The speaker **221** emits various sound effects for performing various types of rendered effects, based on output signals from the sound output circuit **231**. Furthermore, the I/O interface **90** is connected with the abovementioned infrared camera **15** and/or the IC tag reader **16**, thereby transmitting and receiving information in relation to the number of dots of the three dice **70**, which comes to rest on the playing board **3**a, between the infrared camera **15** and/or the IC tag reader **16**.

Furthermore, the CPU **81** is connected with a timer **131**, which can measure time via the I/O interface **90**. The timer **131** measures a bet time by way of the CPU **81**.

Here, the oscillating motor **300**, the infrared camera **15**, the IC tag reader **16**, the lamp **222**, the sound output circuit **231**, and the speaker **221** are provided within a single composite unit **220**.

In addition, via a communication interface **95** connected to the I/O interface **90**, the main control unit **80** transmits and receives data such as bet information, a game start signal, payout information, and the like to and from each station **4**, as well as data such as bet start instruction images, bet start instruction signals, and the like to and from the dealer used display **210**.

Furthermore, the I/O interface **90** is connected with a history display unit **91**, and the main control unit **80** transmits and receives information in relation to the number of dots on the die, to and from the history display unit **90**.

ROM **82** in the main control unit **80** is configured to store a program for implementing basic functions of the gaming machine **1**; more specifically, a program for controlling various devices which drive the playing unit **3**, a program for controlling each station **4**, and the like, as well as a payout table, data indicating a predetermined time T, data indicating a specific value TT, and the like.

RAM **83** is memory, which temporarily stores various types of data calculated by CPU **81**, and, for example, temporarily stores bet information and a game start signal transmitted from each station **4**, information on respective number of dots that appear on the dice **70** transmitted from the infrared camera **15** and/or the IC tag reader **16**, data relating to the results of processing executed by CPU **81**, and the like. A jackpot storage area is provided in the RAM **83**. In the jackpot storage area, the data indicating the number of playing media stored cumulatively is stored so as to corre-

spond to each number of dots of matching dice. The data is provided to the station **4** at a predetermined timing, and a jackpot image is displayed.

The CPU **81** controls the oscillating motor **300**, which oscillates the playing unit **3**, based on data and a program stored in the ROM **82** and the RAM **83**, and oscillates the playing board **3**a of the playing unit **3**. Furthermore, after oscillation of the playing board **3**a ceases, a control processing associated with game progression, such as confirmation processing for confirming the number of dots on each of the dice **70** resting on the playing board **3**a.

In addition to the control processing described above, the CPU **81** performs transmission and reception of data between each station **4**, and performs control processing to control each station **4** to cause a game to advance. More specifically, a bet time is set and the CPU **81** accepts bet information transmitted from each station **4**. Then, in a case in which the game start signal has been received from the stations **4** that accepted the bet information, the bet time is shortened, and control is performed to start a game when the bet time has elapsed. Furthermore, the CPU **81** performs win determination processing based on the number of dots on the dice **70** and the bet information transmitted from each station **4**, and calculates the amount of an award paid out in each station **4** with reference to the payout table stored in the ROM **82**.

FIG. **16**D is a block diagram showing the internal configuration of the station shown in FIG. **2**D. The station **4** includes a main body **100** in which an image display unit **7** and the like are provided, and a game media receiving device **5**, which is attached to the main body **100**. The main body **100** further includes a station control unit **110** and several peripheral devices.

The station control unit **110** includes a CPU **111**, ROM **112**, and RAM **113**.

ROM **112** stores a program for implementing basic functions of the station **4**, other various programs needed to control the station **4**, a data table, and the like.

Moreover, a decision button **30**, a payout button **31**, and a help button **32** provided in the control unit **6** are connected to the CPU **111**, respectively. The CPU **111** controls the execution of various corresponding operations in accordance with manipulation signals, which are generated in response to each button pressed by a player. More specifically, the CPU **111** executes various processing, based on input signals transmitted from the control unit **6** in response to a player's operation which has been inputted, and the data and programs stored in the ROM **112** and RAM **113**. Subsequently, the CPU **111** transmits the results to the CPU **81** in the main control unit **80**.

In addition, the CPU **111** in the main control unit **80** receives instruction signals from the CPU **81**, and controls peripheral devices which configure the station **4**. The CPU **111** performs various kinds of processing based upon the input signals supplied from the control unit **6** and the touch panel **35**, and the data and the programs stored in the ROM **112** and the RAM **113**. Then, the CPU **111** controls the peripheral devices which configure the station **4** based on the results of the processing. It should be noted that the mode whereby processing is performed is set for each processing depending on the content of the processing. For example, the former approach is applied to payout processing of game media, and the latter approach is applied to bet operation processing by a player.

Furthermore, a hopper **114**, which is connected to the CPU **111**, pays out a predetermined amount of game media through the payout opening **8**, receiving the instruction signals from the CPU **111**.

Moreover, the image display unit **7** is connected to the CPU **111** via a liquid crystal driving circuit **120**. The liquid crystal driving circuit **120** includes program ROM, image ROM, an image control CPU, work RAM, a video display processor (VDP), video RAM, and the like. Here, the program ROM stores an image control program with respect to the display functions of the image display unit **7**, and various kinds of selection tables. The image ROM stores dot data for creating an image to be displayed on the image display unit **7**, and dot data for displaying a jackpot image, for example. In addition, the image control CPU determines an image to be displayed on the image display unit **7**, selected from the dot data previously stored in the image ROM according to the image control program previously stored in the program ROM based on parameters specified by the CPU **111**. The work RAM is configured as a temporary storage means when executing the image control program by the image control CPU. The VDP forms an image corresponding to the display contents determined by the image control CPU and outputs the resulting image on the image display unit **7**. It should be noted that the video RAM is configured as a temporary storage device used by the VDP for creating an image.

As mentioned above, the touch panel **35** is attached to the front side of the image display unit **7**, and the information related to operation on the touch panel **35** is transmitted to the CPU **111**. The touch panel **35** detects an input operation by the player on a bet screen **40** and the like. More specifically, selection of the normal bet area **41** and the side bet area **42** in the bet screen **40**, manipulation of the start button **49**, the bet button unit **43**, and the like, are performed by touching the touch panel **35**, and the information thereof is transmitted to the CPU **111**. Then, a player's bet information is stored in the RAM **113** based on the information stored. Furthermore, the bet information is transmitted to the CPU **81** in the main control unit **80**, and stored in a bet information storage area in the RAM **83**.

Moreover, a sound output circuit **126** and a speaker **9** are connected to the CPU **111**. The speaker **9** emits various sound effects for performing various kinds of rendered effects, based on output signals from the sound output circuit **126**. In addition, the game media receiving device **5**, into which game media such as coins or medals are inserted, is connected to the CPU **111** via a data receiving unit **127**. The data receiving unit **127** receives credit signals transmitted from the game media receiving device **5**, and the CPU **111** increases a player's credit amount stored in the RAM **113** based on the credit signals transmitted.

A timer **130**, which can measure time, is connected to the CPU **111**.

A gaming board **60** includes a CPU (Central Processing Unit) **61**, ROM **65** and boot ROM **62**, a card slot **63**S compatible with a memory card **63**, and an IC socket **64**S compatible with a GAL (Generic Array Logic) **64**, which are connected to one another via an internal bus.

The memory card **63** comprises nonvolatile memory such as compact flash (trademark) or the like, which stores a game program and a game system program.

Furthermore, the card slot **63**S has a configuration that allows the memory card **63** to be detachably inserted, and is connected to the CPU ill via an IDE bus. Such an arrangement allows the kinds or content of the game provided by the station **4** to be changed by performing the following opera-

tion. More specifically, the memory card **63** is first extracted from the card slot **63**S, and another game program and another game system program are written to the memory card **63**. Then, the memory card **63** thus rewritten is inserted into the card slot **63**S. In addition, the kinds or content of the games provided by the station **4** can be changed by replacing the memory card **63** storing a game program and a game system program with another memory card **63** storing another game program and game system program. The game program includes a program for advancing a game and the like. The game program also includes a program related to image data and sound data outputted during a game.

The GAL **64** is one type of PLD that has a fixed OR array structure. The GAL **64** includes multiple input ports and output ports and, upon receiving predetermined data via each input port, outputs output data that corresponds to the input data via the corresponding output port. In addition, an IC socket **64**S has a structure that allows the GAL **64** to be detachably mounted, and is connected to the CPU **111** via the PCI bus.

The CPU **61**, the ROM **65**, and the boot ROM **62**, which are connected to one another via the internal bus, are connected to the CPU **111** via the PCI bus. The PCI bus performs signal transmission between the CPU **111** and the gaming board **60**, as well as supplying electric power from the CPU **111** to the gaming board **60**. The ROM **65** stores country identification information and an authentication program. The boot ROM **62** stores a preliminary authentication program, a program (boot code) which instructs the CPU **61** to start up the preliminary authentication program, etc.

The authentication program is a program (forgery check program) for authenticating the game program and the game system program. The authentication program is defined to follow the procedure (authentication procedure) for confirming and authenticating that the game program and the game system program, which are to be acquired after the authentication, have not been forged, i.e. the procedure for authenticating the game program and the game system program. The preliminary authentication program is a program for authenticating the aforementioned authentication program. The preliminary authentication program is defined to follow the procedure for verifying that the authentication program has not been forged, i.e. the procedure for authenticating the authentication program (authentication procedure).

An instruction image display determination table is described with reference to FIG. **17**D.

In Steps S**11** and S**19** of FIG. **31**D, the instruction image display determination table is referred to by the CPU **81** upon determining whether a bet start instruction image or a bet end instruction image is displayed on the display screen **210**a of the dealer used display **210**.

According to this table, "X" is data for indicating that the bet start instruction image and the like is not displayed on the display screen **210**a, and "O" is data for indicating that the bet start instruction image and the like is displayed on the display screen **210**a. For example, in a case in which a dealer belongs to an intermediate level, the bet start instruction image is not displayed on the display screen **210**a, but the bet end instruction image is displayed on the display screen **210**a. In addition, this table is stored in the ROM **82**.

The bet existence determination table is described with reference to FIG. **18**D.

This bet existence determination table is updated in a case in which bet information has been received from each station **4** in Step S**13** of FIG. **31**D and in a case in which a game start signal has been received in Step S**14**, and the CPU **81** refers to the table upon determining whether game start signals have been received from all of the stations that received bet information in Step S**15**.

Data indicating whether or not the bet information has been received at each station number and data indicating whether or not a game start signal has been received at each station number is stored in this table. "P" is data indicating that the bet information or a game start signal has been received, and "A" is data indicating that the bet information or a game start signal has not been received. In addition, this table is updated in every game, and stored in the RAM **83**.

An oscillation mode data table is described with reference to FIG. **19**D.

The CPU **81** refers to this oscillation mode data table upon determining combination patterns of the oscillation modes of the playing board **3**a. In addition, this table is stored in the ROM **82**.

According to this table, in a case of a pattern **3**, the roll of dice **70** is performed in the order of a small oscillation for six seconds, a large oscillation for four seconds, and a subtle oscillation for five seconds. Here, the order of oscillation amplitude of the playing board **3**a is equal to large oscillation>small oscillation>subtle oscillation. It should be noted that the oscillation speed for the large oscillation, the small oscillation, and the subtle oscillation are all the same speed. Furthermore, the small oscillation is enough to be able to roll a die, the large oscillation is enough to jump a die, and the subtle oscillation is enough to level off a die that comes to rest at a tilt.

A rendered effect table is described with reference to FIG. **20**D.

The CPU **81** refers to this rendered effect table upon determining rendered effect data in response to an oscillation pattern of the playing board **3**a in Step S**43** of FIG. **33**D. In addition, this table is stored in the ROM **82**.

According to this table, oscillation modes correspond to sound types and, for example, in the case of a large oscillation, "sound **2**" is determined. For example, in the case of "sound **2**", the sound indicating that a die jumps is outputted from the speaker **221**.

It should be noted that, by way of associating an oscillation mode with a certain type of emitted light, rendered effects with a light emitting mode associated with an oscillation mode may be performed by lighting or flashing of the lamp **222**.

An IC tag data table is described with reference to FIG. **21**D.

The IC tag data table is a table showing data as identification data **1** to **3** which is created by the CPU **81** based on the results of the type of dice and the number of dots on the dice, when information stored in IC tags embedded in the dice **70**a, **70**b, and **70**c is detected by the IC tag reader **16**.

According to this table, for example, when an IC tag embedded in each die is detected in the order of **70**c, **70**a, and **70**b, by the IC tag reader **16**, the die **70**c is associated with identification data **1** of which the type is "red" and the number of dots is "six", the die **70**a is associated with identification data **2** of which the type is "white" and the number of dots is "three", and the die **70**b is associated with identification data **3** of which the type is "black" and the number of dots is "five".

On the other hand, when three dice are not detected, for example, in a case where only two dice are detected, identification data is created for only 2 sets, identification data **1** and **2**.

In addition, the data table is transmitted from the IC tag reader **16** to the CPU **81**, and then the CPU **81** receives it to analyze the number of dots on a die and the like.

An infrared camera capturing data table is described with reference to FIG. **22**D.

The infrared camera capturing data table is a data table showing dot patterns of the infrared absorption inks applied to the dice **70** and location data of the dice **70** on the playing board **3**a.

For example, regarding the die **70**a shown in FIG. **11**D, in the infrared camera capturing data table, the CPU (not shown) inside the infrared camera **15** stores −50 for X and 55 for Y as location data, stores "O" for **181**, **182**, **184**, **186**, and **187**, to which the infrared absorption inks are being applied, and stores "X" for **183** and **185**, which are not being applied. The same is true of the dice **70**b and **70**c.

On the other hand, as shown in FIG. **13**D, in a case where a plurality of faces of the dice **70** is captured, the number of dots cannot be specified uniquely. In this case, the CPU (not shown) inside the infrared camera **15** calculates the area of the profiles **75** on the plurality of faces thus captured, and generates the infrared camera capturing data table based on the dot patterns on the face that has a maximum area.

Therefore, even if the dice **70** come to rest at a tilt and a plurality of faces of the dice **70** is captured, the number of dots can be specified uniquely.

In addition, this data table is transmitted from the infrared camera **15** to the CPU **81**, and then the CPU **81** receives it to analyze the number of dots on a die and the like.

A dot pattern data classification table is described with reference to FIG. **23**D.

According to this table, colors as the classification for the dice **70** are set so as to correspond to dot combinations to which the infrared absorption ink is applied, among the abovementioned dots **181** to **183** in FIG. **10**D. "O" indicates that the infrared absorption ink is applied to the dot, and "X" indicates that the infrared absorption ink is not applied to the dot.

For example, in a case where the infrared camera capturing data table described in FIG. **22**D is transmitted to the CPU **81**, the CPU **81** determines the classification of the dice **70** as "red" by comparing the infrared camera capturing data table with the dot pattern data classification table.

A number of dots-dot pattern data table is described with reference to FIG. **24**D.

According to this table, numbers as the number of dots on the dice **70** are set so as to correspond to dot combinations to which the infrared absorption ink is applied, among the abovementioned dots **184** to **187** in FIG. **10**D. "O" indicates that the infrared absorption ink is applied to the dot, and "X" indicates that the infrared absorption ink is not applied to the dot.

For example, in a case where the infrared camera capturing data table shown in FIG. **22**D is transmitted from the infrared camera **15** to the CPU **81**, the CPU **81** determines the number of dots on the dice **70** as "five" by comparing the infrared camera capturing data table thus received with the dot pattern data classification table.

A bet start instruction image is described with reference to FIG. **25**D.

The bet start instruction image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** before the CPU **81** accepts a bet from each station **4**.

This bet start instruction image instructs a dealer to touch a "bet start" button. When a touch panel **211** detects that the dealer has touched the "bet start" button, the touch panel **211** transmits a bet start instruction signal to the CPU **81** via a communication interface **95**. Furthermore, at the upper left portion of the bet start instruction image, "BET TIME" indicating a bet time is displayed. The "BET TIME" indicates a time (in seconds) for which a bet is possible, and in this bet start instruction image, 60 is displayed as an initial setting time. Furthermore, the "BET TIME" is displayed as an image in which the time left decreases over time.

A bet time shortening period image is described with reference to FIG. **26**D.

The bet time shortening period image is an image that the CPU **81** displays on the display screen **210**a of the dealer used display **210** when the game start signals has been received from all of the stations **4** that have received bet information.

This bet time shortening period image instructs the dealer not to touch a "bet end" button. Furthermore, in the "BET TIME" of a bet end not recommended image, by the processing in Step S**16** of FIG. **31**D (described later), 10 is displayed as the time for which a bet is possible after the bet time is shortened.

A bet end instruction image is described with reference to FIG. **27**D.

The bet end instruction image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** after elapse of a predetermined time from when the CPU **81** starts accepting a bet from each station **4**. Furthermore, 0 is displayed in the "BET TIME" of the bet end not recommended image. That is, it indicates that the bet time has ended.

This bet end instruction image instructs the dealer to touch the "bet end" button. When the touch panel **211** detects that the dealer has touched the "bet end" button, the touch panel **211** transmits a bet end instruction signal to the CPU **81** via the communication interface **95**.

A display example on the image display unit **7** of each station **4** is described with reference to FIG. **28**D.

The image shown in FIG. **29**D reports to each of the stations **4** that it is possible to bet in a game. A player can recognize that a bet on a game is possible by confirming that a message "ABLE TO PLACE THE BET" is displayed.

A display example on the image display unit **7** of each station **4** is described with reference to FIG. **29**D.

An image shown in FIG. **29**D is configured to report to each station **4** that accepting of bets has ended. A player can recognize that the accepting of bets has ended by confirming that a message "NO MORE BETS" is displayed.

Subsequently, with reference to FIGS. **30**D to **34**D, processing performed in the main control unit of a gaming machine according to the present embodiment is described.

FIG. **30**D is a flowchart showing dice game play execution processing for which advancement is controlled by the CPU **81**.

Initially, in Step S**1**, the CPU **81** executes bet processing, which is described later in FIG. **31**D. Next, as game execution processing in dice game play, the CPU **81** executes dice rolling processing of Step S**3** and number of dots detection processing of Step S**5**. Next, in Step S**7**, the CPU **81** executes payout processing corresponding to the number of dots, and then returns to Step **1**.

The CPU **81** refers to the oscillation mode data table (see FIG. **19**D) and randomly extracts oscillation pattern data in the game execution processing of Step S**3** for the dice game play, and based on the oscillation pattern data thus extracted, refers to the rendered effect table (see FIG. **20**D) and extracts rendered effect data corresponding to an oscillation mode. Then, the CPU **81** oscillates the playing board **3**a by controlling the oscillation motor **300** based on the oscillation

pattern data thus extracted, and performs a rendered effect with sounds and/or lights based on rendered effect data corresponding to an oscillation mode.

In the number of dots on dice detection processing in Step S5 in dice game play, the CPU **81** determines whether or not three sets of identification data (the identification data **1** to **3**) exist in the IC tag data table received from the IC tag reader **16**, and in a case of a determination that 3 sets of identification data are present, the CPU **81** determines the number of dots on each of the three dice by analyzing the identification data **1** to **3**. In a case of a determination that 3 sets of identification data are present, the CPU **81** receives infrared camera capturing data of each of the dice **70**a, **70**b, and **70**c from the infrared camera **15**. Then, the CPU **81** determines positions of the dice on the playing board **3**a based on the infrared camera capturing data table (see FIG. **22**D), determines types (colors) of the dice based on the infrared camera capturing data table (see FIG. **22**D) and the dot pattern data classification table (see FIG. **23**D), and determines numbers of dots on the dice based on the infrared camera capturing data table (see FIG. **22**D) and the number of dots-dot pattern data table (see FIG. **24**D).

FIG. **31** is a flowchart showing bet processing.

In Step S11, the CPU **81** sets a bet time. More specifically, the CPU **81** performs processing that sets a predetermined bet time (for example, 60 seconds) which is compared with an elapsed time t of the timer **131**, in a certain area of the RAM **83**.

In Step S12, the CPU **81** performs control to display the bet start instruction image (see FIG. **25**D) on the display screen **210**a of the dealer used display **210**. Furthermore, the CPU **81** starts subtracting the bet time in a case in which the bet start instruction signal has been received from the touch panel **211** by an operation of the dealer. Then, a bet operation by a player becomes possible at each of the stations **4**.

It should be noted that, whether or not the bet start instruction image is displayed may be determined according to a dealer's level with reference to the instruction image display determination (see FIG. **17**D). Thus, according to the dealer's level, it becomes possible to determine whether the bet start instruction image is displayed on the display screen **210**a of the dealer used display **210**.

In Step S13, the CPU **81** performs processing to receive bet information from the station **4**. More specifically, the CPU **81** performs control to receive the bet information from each of a plurality of touch panels **35** that are provided to each of a plurality of stations **4**. Furthermore, the CPU **81** performs control to update the bet existence determination table (see FIG. **18**D) in each of the stations **4** that have received bet information.

In Step S14, the CPU **81** performs processing to receive the game start signal from the station **4**. More specifically, the CPU **81** performs control to receive the game start signal from the touch panel **35** provided to each of the plurality of the stations **4**. Furthermore, the CPU **81** performs control to update the bet existence determination table (see FIG. **18**D) in each of the stations **4** that have received the game start signal.

In Step S15, the CPU **81** performs processing to determine whether a game start signal has been received from each of the stations **4** that have received bet information. More specifically, the CPU **81** refers to the bet existence determination table (see FIG. **18**D) and performs processing to determine whether a game start signal has been received from each of the stations **4** that have received bet information. In a case of a YES determination, the CPU **81** advances the processing to Step S16, and in a case of a NO determination, returns the processing to Step S14,

In Step S16, the CPU **81** performs processing to shorten the bet time. More specifically, the CPU **81** performs processing to subtract a predetermined number (for example, 20 seconds) from the bet time set in the RAM **83** in Step S11.

Thus, according to the present embodiment, in a mass game, a gaming machine can be provided which can shorten a bet time while waiting for bets from all of the players.

It should be noted that, in the present invention, although the bet time is shortened when a game start signal has been received from each of the stations that have received bet information, the present invention is not limited thereto and, for example, the bet time can be shortened when a game start signal has been received from a station **4** that first transmits bet information. Furthermore, the bet time can be shortened when a game start signal has been received from a station **4** that won the highest award in a previous game. According to this, it is possible to add a novel game property in that game leadership is pursued.

In Step S17, the CPU **81** performs control to display the bet time shortening period image (see FIG. **26**D) on the display screen **210**a of the dealer used display **210**.

In Step S18, the CPU **81** determines whether or not a bet time has elapsed. More specifically, the CPU **81** starts measurement of a lapse of time t using the timer **131**, compares the lapse of time t with data that indicates a bet time stored in the RAM **83**, and determines whether the lapse of time t measured by the timer **131** has reached the bet time. In the case of a NO determination, the CPU **81** returns the processing to Step S18, and in the case of a YES determination, the CPU **81** advances the processing to Step S19.

In Step S19, the CPU **81** displays the bet end instruction image (see FIG. **27**D) on the display screen **210**a of the dealer used display **210**. It should be noted that, whether or not the bet end instruction image is displayed may be determined according to a dealer's level with reference to the instruction image display determination (see FIG. **17**D).

In Step S20, the CPU **81** transmits the bet end signal to each station **4**. When the bet end signal is received, bet placement cannot be accepted at each station **4**, and then the CPU **111** inside the station control unit **110** displays an image which reports on the image display unit **7** that an accepting of bet placement has been terminated (FIG. **29**D).

Descriptions regarding the present embodiment have been provided above. Although a case has been described in which the number of dice **70** is three according to the present embodiment, the number of in the present invention is not limited to three and, for example, the number of the dice may be five.

Furthermore, in the present embodiment, although a dice game such as SIC BO is described, the present invention is not limited thereto, and can be applied to a roulette game, card games such as baccarat, and the like.

In the present embodiment, although the controller of the present invention is described for a case of being configured from a CPU **81** which the main controller **80** includes and a CPU **111** which the station **4** includes, the controller of the present invention may be configured by only a single CPU.

Although embodiments of the present invention are described above, they are merely exemplified specific examples, and the present invention is not particularly limited thereto. Specific configurations such as each means can modified appropriately. Moreover, it should be understood that the advantages described in association with the embodiments are merely a listing of most preferred advan-

tages, and that the advantages of the present invention are by no means restricted to those described in connection with the embodiments.

Embodiments of the present invention are described below with reference to the accompanying drawings.

FIG. **1**E is a flowchart showing a general outline of an embodiment of the present invention. Although details are described later, a game terminal **3** accepts a bet and performs transmission there of to a controller **2** (Step S**100**). Then, a CPU **81** of the controller **2** determines a game terminal **3** to operate a shake button **301** (Step S**101**). When the CPU **81** of the controller **2** detects that the game terminal **3** has operated the shake button **301** (Step S**102**), the CPU **81** causes a dice movable unit **4** to perform a shaking motion (Step S**103**). After performing the shaking motion, when the dice come to rest, the dice movable unit **4** detects a number of dots on the dice (Step S**104**), and the CPU **81** of the controller **2** determines an award according to the number of dots on the dice and causes the game terminal **3** to perform payout processing (Step S**105**).

<Overall Outline>

With reference to FIG. **2**E, a gaming system **1** of the present embodiment is described. FIG. **2**E is a perspective diagram schematically showing an example of the gaming system **1**.

The gaming system **1** of the present embodiment is configured by a controller **2**, game terminals **3**, and a dice movable unit **4**. Furthermore, a history display unit **91** is provided at a position visually recognizable by players playing at a plurality of game terminals **3**. In the present embodiment, a gaming system that performs a Sic Bo game is explained.

The controller **2** controls the overall gaming system **1**. Furthermore, in the present embodiment, the controller **2** includes a dealer used display **210**, which is used by a dealer **5** present as a facilitator of a game, and a touch panel **211** provided at the dealer used display **210**, and executes a control for the overall gaming system **1** according to an operation of the dealer **5**.

The game terminals **3** are terminals that players operate. The game terminals **3** accept bet operations by players sitting on chairs (not shown) provided in front of the game terminals **3**, and pay out awards of games. Details thereof are described later.

The dice movable unit **4** rolls a plurality of the dice **40** used in a Sic Bo game. The plurality of dice **40** is caused to roll, and an award is determined based on a combination of numbers showing on an upper face (hereinafter, a number of dots on dice) when the dice **40** come to rest. In other words, a random number can be obtained by rolling a plurality of the dice **40**.

The history display unit **91** displays a history of a game, mainly a number of dots on the dice. Details thereof are described later.

<Game Terminal>

The game terminals **3** are described with reference to FIG. **3**E. FIG. **3**E is a perspective diagram of the game terminals **3**.

The game terminals **3** are configured with; a cabinet **32** that makes a housing holding a circuit board and the like; an upper door **33** on which a display device **330**, an operation unit **332**, and the like are disposed; a hopper unit **34** that can be a retaining device for medals or coins, and discharge medals or coins; and a detachable application unit **35** at which speakers **351**, a lamp unit **352** and the like are disposed.

The cabinet **32** holds the circuit board and the like therein, and configures a main body of the game terminal **3**. The cabinet **32** includes: a sub holding portion **321** that is formed below the upper door **33** (hereinafter, a lower direction shown in the drawing is a lower side B); a main holding portion **322** that is formed at the lower side B of the sub holding portion **321**; and a support portion **323** that is also formed at the further lower side B of the main holding portion **322**.

At the front side F (hereinafter, a front direction shown in the drawing is a front side F) of the cabinet **32** and the sub holding portion **321**, a card insertion opening **326** into which a player card which is an information storage medium of a Player Tracking System (PTS) is inserted and a player information display unit **327** for displaying information stored in the player card thus inserted are provided. In the player card, information relating to a player such as a player's ID is stored, and history information of a player as a holder of the player card which is inserted into the card insertion opening **326** is displayed on the player information display unit **327**. It should be noted that, in the present embodiment, play history is also stored in the player card.

Furthermore, the cabinet **32** includes a foot lamp **325** on the front side F of the cabinet **32** and at the lower side B of the main holding portion **322**. In addition, the foot lamp **325** is disposed at the front side F of the support portion **323**. Then, the foot lamp **325** irradiates light toward the lower side B so as to irradiate a region corresponding to a player's feet while the player is sitting in front of the game terminal **3**.

A support board **324** is provided at the lower side B of the cabinet **32**. This support board **324** is disposed at the lowest side B of the cabinet **32** and is formed to protrude from an end of the lower side B of the support portion **323** to the front side F.

Furthermore, at the rear side R (hereinafter, a direction of a rear face side is a rear side R) of the cabinet **32**, a housing light emitting unit (not shown) is provided. The housing light emitting unit **24** emits light or changes a light emitting mode according to a control signal from the CPU ill.

The upper door **33** is disposed at the upper side T of the cabinet **32** so as to cover the upper side T of the cabinet **32**, and opens and closes so as to rotate around the end of the rear side R.

Furthermore, the upper door **33** includes: a display device **330** that mainly displays an image relating to a game; an operation unit **332** in which a player performs an operation relating to a game; a coin insertion opening **333** into which a coin is inserted; and a bill insertion opening **334** into which a bill is inserted. In addition, a shake button **301** that causes the dice to roll and a select button **302** that is pushed when selecting a bet operation after the bet operation are provided in the operation unit **332**. Moreover, in a case other than the bet operation, the select button **302** is pushed when confirming an input that a player performed.

Furthermore, a payout button **303** and a help button **304** are disposed on the right side R**2** of the display device **330** on the upper door **33**. The payout button **303** is a button which is usually pushed at the end of a game, and when the payout button **303** is pushed, game media corresponding to credits that the player possesses are paid out from the coin payout opening **342**. Another operation is performed by the player touching a display screen displayed on the display device **330**. That is, since a touch-sensitive sensor is installed on the surface of the display device **330**, various operations are recognized by the player touching by way of a so-called touch panel type.

The help button **304** is a button that is pushed in a case where a method of operating the game is unclear, and upon the help button **304** being pushed, a help screen showing various types of operation information is displayed immediately thereafter on the display device **330**.

A hopper unit **34** is disposed closer to the right side (hereinafter, a direction of a right side is a right side R**2**) at the lower side B of the upper door **33** and the sub holding portion **321**. The hopper unit **34** forms a side face of the right side R**2** of the game terminal **3** along with the right side R**2** of the cabinet **32**. This hopper unit **34** is provided as a separate body from the cabinet **32** and is connected to the cabinet **32** through a hopper opening portion (not shown) which is opened at a face of the lower side B of the sub holding portion **321**.

The hopper unit **34** is formed in a vertically long shape in a thickness direction (a F-R direction). Then, at the front side F of the hopper unit **34**, the coin payout opening **342**, which pays out coins, is formed, and the coins paid out from the coin payout opening are retained in a coin tray **343**.

The application unit **35** is disposed at a face of the upper side T of the cabinet and at the end of the rear side R. The application unit **35** is formed as a separate body from the cabinet **32** and can be detached from the cabinet (the details thereof are described later).

In the present embodiment, the application unit **35** includes speakers **351** and a lamp unit **352**. That is, the speakers **351** and the lamp unit **352** are detachably formed as a single unit in the game terminal **3**.

<Dice movable unit>

A dice movable unit **4** is described with reference to FIGS. **2**E and **4**E. FIG. **4**E is a perspective diagram showing a dice movable unit **4**.

The dice movable unit **4** is configured so as to allow a plurality of the dice **40** to roll and stop. This dice movable unit **4** includes a shaking device **41**, which is configured so that the dice **40** rolling can be visually recognized, and a unit body **47** that holds the shaking device **41**. In the present embodiment, the three dice **40** (the die **40**a, the die **40**b, and the die **40**c) are also used in the shaking device **41**.

Lamps **42** are disposed at the dice movable unit **4**. The lamps **42** perform rendered effects by emitting light while the dice **40** are being rolled. Furthermore, a speaker **46** is disposed at a side of the dice movable unit **4**.

The shaking device **41** is formed in a circular shape and includes a playing board **41**a that supports a plurality of the dice **40**, an IC tag reader **43** that is embedded in the playing board **41**a, and a cover member **44** that is disposed so as to enclose the playing board **41**a from above.

Since the playing board **41**a is formed to be substantially planar, as shown in FIG. **4**E, the dice **40** are rolled by oscillating the playing board **41**a substantially in the vertical direction with respect to the horizontal direction of the playing board **41**a. Then, when the oscillation of the playing board **41**a stops, the dice **40** rolling come to rest. The playing board **41**a is oscillated by a CPU **81** (described later) driving the shaking device **41**.

Furthermore, the IC tag reader **43** is embedded in the surface of the playing board **41**. This IC tag reader **43** recognizes an IC tag embedded in each of the faces of the dice **40**. It should be noted that it is preferable for the IC tag reader **43** to be embedded in the surface of the playing board **41**a so as not to be visually recognized from the outside of the playing board **41**a. For example, the playing board **41**a is formed by disposing the IC tag reader **43** at the surface of a member as a base of the playing board **41**a, and then placing a member as a cover thereover.

The cover member **44** is disposed so as to cover the entire top face of the playing board **41**a. In addition, the cover member **44** is made of a transparent member in a substantially hemispherical shape and limits an area in which the dice **40** roll. In the present embodiment, an infrared camera **45** is provided at the top of the cover member **44** to detect the numbers of dots and the like (such as positions of the dice **40** on the playing board **41**a, classification of the dice **40**, and numbers of dots of the dice **40**) of the dice **40**. Furthermore, the cover member **44** is covered with a special film (not shown) which blocks infrared radiation.

Thus, it can prevent the infrared camera **45** from incorrectly detecting the numbers of dots on the dice **40**.

A plurality of the dice **40** is disposed at a space formed by the playing board **41**a and the cover member **44**. In the present embodiment, the dice **40** are substantially hexahedral and the IC tags are embedded in each face thereof. It should be noted that it is preferable for this IC tag to be embedded in the surface of the dice **40** so as not to be visually recognized from the outside of the dice **40**. For example, the dice **40** are formed by disposing the IC tag at the surface of a member as a base of the dice **40**, and then placing a member as a cover thereover.

The IC tag reader **43** is a non-contact type IC tag reader. For example, it is possible to read information stored in the IC tag by RFID (Radio Frequency Identification). The RFID system performs near field communication that reads and writes data stored in semi-conductor devices by an induction field or radio waves in a non-contact manner. In addition, since this technology is known conventionally and is described in Japanese Unexamined Patent Application Publication No. H8-21875, an explanation thereof is abbreviated.

In the present embodiment, a plurality of IC tags is read by a single IC tag reader **43**. Under the abovementioned RFID system, an anti-collision function can be employed which can read a plurality of IC tags by a single reader. The anti-collision function includes FIFO (first in first out) type, multi-access type, and selective type, and communicates with a plurality of the IC tags sequentially. The FIFO type is a mode to communicate with a plurality of the IC tags sequentially in the order that each IC tag enters an area in which an antenna can communicate therewith. The multi-access type is a mode that is able to communicate with all the IC tags, even if there is a plurality of the IC tags simultaneously in the area in which an antenna can communicate with the IC tags. The selective type is a mode that is able to communicate with a specific IC tag among a plurality of the IC tags in the area in which an antenna can communicate therewith. By employing the abovementioned modes, it is possible to read a plurality of the IC tags with a single IC tag reader.

In addition, reading the IC tags may not only be done by the non-contact type, but also a contact type. In addition, the IC tag reader is not limited thereto, and anything that is appropriately designed with the object of being read may be employed.

Here, in the present embodiment, the number of dots of a face, opposing the face on which the IC tag is embedded, is determined as the number of dots of the dice **40**.

More specifically, "one" is stored as data of the number of dots in the IC tag on the face of which the number of dots is "six". "Two" is stored as data of the number of dots in the IC tag on the face of which the number of dots is "five". "Six" is stored as data of the number of dots in the IC tag on the face of which the number of dots is "one". "Five" is stored as data of the number of dots in the IC tag on the face

of which the number of dots is "two". "Three" is stored as data of the number of dots in the IC tag on the face of which the number of dots is "four". Finally, "four" is stored as data of the number of dots in the IC tag on the face of which the number of dots is "three".

Then, in a state in which the dice **40** have come to rest, the IC tag reader **43** reads an IC tag on a face that is in contact with the playing board **41**a (in other words, a face facing toward the lower side of the dice **40**). Then, since data of a number of dots for a face opposite to the face is stored in the IC tag of the face thus read, the face presently facing the upper side is recognized as a number of dots.

For example, in the dice **40**, in a case in which a face that is in contact with the playing board **41**a is a face of which the number of dots is "six", the IC tag reader **43** reads data of an IC tag which is embedded in the face of "six". Data of the number of dots stored in the IC tag of the face "six" is "one", which is the number of dots on the face opposing the face of "six", and thus the number of dots on the dice **40** is recognized as "one".

FIG. **5**E is a diagram showing a sheet **401** attached to each face of the dice **40**.

As shown in FIG. **5**E, on each face of the dice **40**, the sheet **401**, to which infrared absorption ink is applied to identify the number of dots and the classification of the dice **40**, is provided so as to be covered by a sheet on which the number of dots is printed. According to FIG. **5**E, the infrared absorption ink can be applied to dots **181**, **182**, **183**, **184**, **185**, **186**, and **187**.

The number of dots of the dice **40** can be identified by a combination of the dots to which the infrared absorption ink is applied among the dots **184**, **185**, **186**, and **187**. In addition, the classification of the dice **40** can be identified by a combination of the dots to which the infrared absorption ink is applied among the dots **181**, **182**, and **183**.

FIG. **6**E shows an image in which the dice **40**, which come to rest on the playing board **41**a, are captured substantially in the vertically upward direction using an infrared camera **45**.

With reference to FIG. **6**E, dots to which the infrared absorption ink is applied on each of the dice **40**a, **40**b, and **40**c are captured in black. The classification and the number of dots for each of the dice **40**a, **40**b, and **40**c are determined based on a combination of the dots to which the ink is applied. In addition, the playing board **41**a is formed in a disc shape having a radius a, and each position of the dice **40**a, **40**b, and **40**c is detected as an x component and y component on an x-y coordinate.

<History Display Unit>

FIG. **7**E is a diagram showing an example of an image displayed on a display screen of a history display unit.

On the display screen of the history display unit **91**, display areas **91**a, **91**b, **91**c, and **91**d are set for displaying cumulative amounts of four types of progressive awards. Display areas **91**e, **91**f, **91**g, and **91**h displays game histories, and in the display area **91**e, information such as a number of dots in the last game before a present game is displayed.

"1", "2", "3", "6", and "Small" are displayed in the order from left as a displayed content in the display area **91**e. The leftmost "1" represents a number of dots on a blue die by being displayed in blue. The second "2" from the left represents a number of dots on a red die by being displayed in red. The third "3" from the left represents a number of dots on a white die by being displayed in white. The fourth "6" from the left represents a sum total value of each of the dice (blue, red, and white). The display areas **91**f to **91**h are similar to the display areas **91**e. In addition, "Small" is displayed, for example, in a case in which a sum total value of numbers of dots on the dice belongs to a numeral range of 4 to 10 among tow numeral ranges 4 to 10 and 11 and 17. "Big" is displayed in a case in which a sum total value of numbers of dots on the dice belongs to a numeral range of 11 to 17.

It should be noted that a plurality of luminous bodies (LEDs) (not shown) is disposed around the history display unit **91**, and this plurality of LEDs emits light in various light emitting modes according to game advancement.

Example of Display Screen

An example of a display screen displayed on the display device **300** of the game terminal **3** is described with reference to FIG. **8**E. FIG. **8**E shows an example of a display screen displayed on the display device **330**.

As shown in FIG. **14**E, the display device **330** in the present embodiment is a touch-panel type of liquid crystal display, on the front surface of which a touch panel **331** is attached, allowing a player to perform selection such as of icons displayed on the display device **330** by contacting the touch panel **331**, e.g., with a finger.

A table-type betting board (a bet screen), as shown in FIG. **8**E, for predicting the number of dots of the dice **40** is displayed in a game at a predetermined timing on the display device **330**.

A detailed description is now provided regarding the bet screen. On the bet screen are displayed a plurality of normal bet areas **441** and a side bet area **442**. The plurality of normal bet areas **441** includes a normal bet area **441**A, a normal bet area **441**B, a normal bet area **441**C, a normal bet area **441**D, a normal bet area **441**E, a normal bet area **441**F, a normal bet area **441**G, and a normal bet area **441**H. By contacting the touch panel **331**, e.g., with a finger, the normal bet area **441** is designated, and by displaying chips in the normal bet area **441** thus designated, a normal bet operation is performed. Furthermore, by contacting the touch panel **331**, e.g., with a finger, the side bet area **442** is designated, and by displaying chips in the side bet area **442** thus designated, a side bet operation is performed.

A unit bet button **443**, a re-bet button **443**E, a payout result display unit **445**, and a credit amount display unit **446** are displayed at the right side of the side bet area **442** in order from the left side.

The unit bet button unit **443** is a group of buttons that are used by a player to bet chips on the normal bet area **441** and the side bet area **442** designated by the player. The bet button **443** is composed of a **1** bet button **443**A, a 5 bet button **443**B, a 10 bet button **443**C, and a 100 bet button **443**D. It should be noted that in the case of an incorrect bet operation, the player can start a bet operation again by touching a re-bet button **443**E.

Firstly, the player designates the normal bet area **441** or the side bet area **442** using a cursor **447** by way of contacting the touch panel **331**, e.g., with a finger. At this time, contacting the 1 bet button **443**A, e.g., with a finger, allows for betting one chip at a time (number of chips to be bet increases one by one in the order of 1, 2, 3, every time the 1 bet button **443**A is contacted, e.g., by a finger). Similarly, when contacting the 5 bet button **443**B, e.g., with a finger, five chips at a time can be bet (number of chips to be bet increases five by five in the order of 5, 10, 15, every time the 5 bet button **443**B is contacted, e.g., by a finger). Similarly, when contacting the 10 bet button **443**C, e.g., with a finger, ten chips at a time can be bet (number of chips to be bet

increases ten by ten in the order of 10, 20, 30, every time the 10 bet button **443**C is contacted, e.g., by a finger). Similarly, when contacting the 100 bet button **443**D, e.g., with a finger, a hundred chips at a time can be bet (number of chips to be bet increases hundred by hundred in the order of 100, 200, 300, . . . every time the 100 bet button **443**D is contacted, e.g. by a finger). The number of chips bet up to the current time is displayed as a chip mark **448**, and the number displayed on the chip mark **448** indicates the number of bet chips.

The number of bet chips and payout credit amount for a player in a previous game are displayed in the payout result display unit **445**. A number obtained by subtracting the amount bet from the payout credits is the credits which the player has newly obtained by the previous game.

The credit amount display unit **446** displays the credit amount which the player possesses. The credit count decreases according to the number of bet chips (1 credit count for 1 chip) when the player bets chips. If the bet chips are entitled to an award and credits are paid out, the credit amount increases in accordance with the number of paid out chips. It should be noted that the game is over when the player's credit count becomes zero.

The normal bet area **441** in the bet screen is described next. The normal bet areas **441**A and **441**B are portions where the player places a bet on a predicted sum of dots appearing on the dice **40**A to **40**C. In other words, the player selects the normal bet area **441**A if the predicted sum falls in a range of 4 to 10, or the normal bet area **441**B if the predicted sum falls in a range of 11 to 17. Odds are set to 1:1 (2 chips are paid out for 1 chip bet).

The normal bet area **441**C is a portion where the player places a bet, predicting that two dice **40** have the same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1), (2, 2), (3, 3), (4, 4), (5, 5), and (6, 6), and the odds are set to 1:10.

The normal bet area **441**D is a portion where the player places a bet, predicting that all three dice have the same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5), and (6, 6, 6), and the odds are set to 1:30.

The bet area **441**E is a portion where the player places a bet on a predicted number of dots appearing commonly on all three dice. In other words, the player places a bet on one of the combinations of (1, 1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), or (6, 6, 6), and the odds are set to 1:180.

The normal bet area **441**F is where the player places a bet, predicting a total, a summation of dots appearing on the three dice. Odds are set according to the occurrence frequency of the total. For example, if the total is 4 or 17, odds are set to 1:60; if the total is 5 or 16, odds are set to 1:30; if the total is 6 or 15, odds are set to 1:18; if the total is 7 or 14, odds are set to 1:12; if the total is 8 or 13, odds are set to 1:8; if the total is 9 or 12, odds are set to 1:7; and if the total is 10 or 11, odds are set to 1:6.

The bet area **441**G is a portion where the player places a bet on predicted dots appearing on the two dice selected from the three, and the odds are set to 1:5.

The normal bet area **441**H is a region where the player places a bet on the number of dots appearing on the dice **40**, and the odds are set according to the number of dots of the dice **40** matching the predicted number of dots.

<Internal Configuration>

FIG. **9**E is a block diagram showing an internal configuration of the controller **2**. A main control unit **80** of the gaming machine **1** includes a microcomputer **85**, which is configured with a CPU **81**, ROM **82**, RAM **83**, and a bus **84** that transfers data therebetween.

The CPU **81** is connected with a shaking device **41** via an I/O interface **90**. Furthermore, the CPU **81** is connected with a timer **131**, which can measure time via the I/O interface **90**. In addition, the CPU **81** is connected with a lamp **42**. The lamp **42** emits various colors of light for performing various types of rendered effects, based on output signals from the CPU **81**. Furthermore, the CPU **81** is connected with a speaker **46** via a sound output circuit **461**. The speaker **46** emits various sound effects for performing various types of rendered effects, based on output signals from the sound output circuit **461**. Furthermore, the I/O interface **90** is connected with the abovementioned infrared camera **45** and/or the IC tag reader **43**, thereby transmitting and receiving information in relation to the number of dots of the three dice **40**, which comes to rest on the playing board **41**a, between the infrared camera **45** and/or the IC tag reader **43**. In addition, via a communication interface **95** connected to the I/O interface **90**, the main control unit **80** transmits and receives data such as bet information, payout information, and the like to and from each game terminal **3**, as well as data such as bet start instruction images, bet start instruction signals, and the like to and from the dealer used display **210**.

ROM **82** in the main control unit **80** is configured to store a program for implementing basic functions of the gaming system **1**; more specifically, a program for controlling various devices which drive the dice movable unit **4**, a program for controlling each tame terminal **3**, and the like, as well as a payout table, data indicating a predetermined time T, data indicating a specific value TT, and the like.

RAM **83** is memory, which temporarily stores various types of data calculated by CPU **81**, and, for example, temporarily stores data bet information transmitted from each game terminal **3**, information on respective number of dots that appear on the dice **40** transmitted from the infrared camera **45** and/or the IC tag reader **43**, data relating to the results of processing executed by CPU **81**, and the like.

A jackpot storage area is provided in the RAM **83**. In the jackpot storage area, the data indicating the number of playing media stored cumulatively is stored so as to correspond to each number of dots of matching dice. The data is provided to the game terminal **3** at a predetermined timing, and a jackpot image is displayed.

The CPU **81** controls the shaking device **41** of the dice movable unit **4** based on data or a program stored in the ROM **82** or the RAM **83**, and oscillates the playing board **41**a (shaking motion) of the dice movable unit **4**. Furthermore, after the shaking motion of the playing board **41**a ceases, a control processing associated with game progression, such as confirmation processing for confirming the number of dots on each of the dice **40** resting on the playing board **41**a is executed.

Furthermore, the I/O interface **90** is connected with a history display unit **91**, and the main control unit **80** transmits and receives information in relation to the number of dots on the die as game history, to and from the history display unit **90**.

Furthermore, an external large-size monitor is connected to the I/O interface **90** through the controller **400**, and the main controller **80** transmits and receives image data and the like to/from the external large-size monitor **500**. On the external large-monitor **500**, a game advancement, a game result, a live image of dice rolling, a demonstration screen, and the like are displayed. This attracts interest of people around the external large-size monitor **500**.

In addition to the control processing described above, the CPU **81** has a function of executing a game by transmitting and receiving data to and from each station **4** so as to control each game terminal **3**. More specifically, the CPU **81** accepts bet information transmitted from each game terminal **3**. Furthermore, the CPU **81** performs win determination processing based on the number of dots on the dice **40** and the bet information transmitted from each game terminal **3**, and calculates the amount of an award paid out in each game terminal **3** with reference to the payout table stored in the ROM **82**.

FIG. **10**E is a block diagram showing an internal configuration of the game terminal **3**. The game terminal **3** includes a main body **100** in which the display device **330** and the like are provided and a coin sensor **341** that is attached to the main body **100**. The main body **100** further includes a terminal control unit **110** and some peripheral devices.

The terminal control unit **110** includes ROM **112** and RAM **113**.

ROM **112** stores a program for implementing basic functions of the game terminal **3**, other various programs needed to control the game terminal **3**, a data table, and the like.

Moreover, a shake button **301**, a select button **302**, a payout button **303**, and a help button **304** are connected to the CPU **111**, respectively. The CPU **111** controls the execution of various corresponding operations in accordance with manipulation signals, which are generated in response to each button pressed by a player. More specifically, the CPU **111** executes various processing, based on input signals provided from the shake button **301**, the select button **302**, the payout button **303**, and the help button **304** in response to a player's operation, and data or programs stored in the ROM **112** and RAM **113**. Subsequently, the CPU **111** transmits the results to the CPU **81** in the main control unit **80**.

In addition, the CPU **111** in the main control unit **80** receives instruction signals from the CPU **81**, and controls peripheral devices which configure the game terminal **3**. The CPU **111** performs various kinds of processing based upon the input signals supplied from the shake button **301**, the select button **302**, the payout button **303**, the help button **304**, and the touch panel **331**, and the data or the programs stored in the ROM **112** and the RAM **113**. Then, the CPU **111** controls the peripheral devices which configure the game terminal **3** based on the results of the processing. It should be noted that the mode whereby processing is performed is set for each processing depending on the content of the processing. For example, the former approach is applied to payout processing of game media for respective numbers of dots appearing on the dice, and the latter approach is applied to bet operation processing by a player.

A hopper unit **34**, which is connected to the CPU **111**, pays out a predetermined number of game media through the coin payout opening **342** by way of the instruction signals from CPU **111**.

The display device **330** is connected to the CPU **111** via a liquid crystal driving circuit **120**. The liquid crystal driving circuit **120** includes program ROM, image ROM, an image control CPU, work RAM, a video display processor (VDP), video RAM, and the like. The program ROM stores an image control program with respect to a display on the display device **330** and various kinds of selection tables. The image ROM stores dot data for creating an image to be displayed on the display device **330**, and dot data for displaying a jackpot image, for example. In addition, the image control CPU determines an image to be displayed on the display device **330**, selected from the dot data previously stored in the image ROM according to the image control program previously stored in the program ROM based on parameters specified by the CPU **111**. The work RAM is configured as a temporary storage means when executing the image control program by the image control CPU. The VDP is a component for creating an image corresponding to the display contents determined by the image control CPU and for outputting the image thus created to the display device **330**. It should be noted that the video RAM is configured as a temporary storage device used by the VDP for creating an image.

As mentioned above, the touch panel **331** is attached to the front side of the display device **330**, and the information related to operation on the touch panel **331** is transmitted to CPU **111**. The touch panel **331** detects an input operation by the player on a bet screen and the like. More specifically, selection of the normal bet area **441** and the side bet area **442** in the bet screen (see FIG. **8**E), manipulation of the bet button unit **443** and the like, are performed by touching the touch panel **331**, and the information thereof is transmitted to the CPU **111**. Then, a player's bet information is stored in the RAM **113** based on the information stored. Furthermore, the bet information is transmitted to the CPU **81** in the main control unit **80**, and stored in a bet information storage area in the RAM **83**.

Moreover, a sound output circuit **126** and a speaker **351** are connected to the CPU **111**. The speaker **351** emits various sound effects for performing various kinds of rendered effects, based on output signals from the sound output circuit **126**. In addition, the hopper unit **34**, into which game media such as coins or medals are inserted, is connected to the CPU **111** via a data receiving unit **127**. The data receiving unit **127** receives credit signals transmitted from the hopper unit **34**, and the CPU **111** increases a player's credit amount stored in the RAM **113** based on the credit signals transmitted. A timer **130**, which can measure time, is connected to the CPU **111**.

<Each Table>

An instruction image display determination table is described with reference to FIG. **11**E.

In Step S1 of FIG. **22**E and Step S7 of FIG. **23**E, the instruction image display determination table is referred to by the CPU **81** upon determining whether a bet start instruction image or a bet end instruction image is displayed on the display screen **210**a of the dealer used display **210**.

According to this table, "X" is data for indicating that the bet start instruction image and the like is not displayed on the display screen **210**a, and "O" is data for indicating that the bet start instruction image and the like is displayed on the display screen **210**a. For example, in a case in which a dealer belongs to an intermediate level, the bet start instruction image is not displayed on the display screen **210**a, but the bet end instruction image is displayed on the display screen **210**a. In addition, this table is stored in the ROM **82**.

The bet existence determination table is described with reference to FIG. **12**E.

The CPU **81** refers to this bet existence determination table upon determining for each game terminal **3** whether a bet operation is performed at each game terminal **3** in Step S18 of FIG. **24**E.

Data indicating whether the bet operation has been performed or not at each game terminal number is stored in this table. "P" is data indicating that a bet operation was performed, and "A" is data indicating that a bet operation was not performed.

Furthermore, regarding the number of the game terminals at which the data "P" which indicates that a bet operation has been performed, a value indicating a bet amount is stored in a row of "Value". In this value, a sum total of the bet amounts is stored in a case in which a plurality of bets is placed at the game terminal **3**. Then, in Step S**18** of the FIG. **24**E, the CPU **81** performs processing of comparing the values indicating the bet amounts in the "Value", recognizing a game terminal **3** that has been bet of the largest amount among the game terminals **3** that have bet, and entitling the game terminal **3** to cause a shaking motion to be started. The details of this processing are described later.

In addition, this table is updated in every game, and stored in the RAM **83**.

An IC tag data table is described with reference to FIG. **13**E.

The IC tag data table is a table showing data as identification data **1** to **3** which is created by the CPU **81** based on the results of the type of dice and the number of dots on the dice, when information stored in IC tags embedded in the dice **40**a, **40**b, and **40**c is detected by the IC tag reader **43**.

According to this table, for example, when an IC tag embedded in each die is detected in the order of **40**c, **400**a, and **40**b, by the IC tag reader **43**, the die **40**c is associated with identification data **1** of which the type is "red" and the number of dots is "six", the die **40**a is associated with identification data **2** of which the type is "white" and the number of dots is "three", and the die **40**b is associated with identification data **3** of which the type is "black" and the number of dots is "five".

On the other hand, when three dice are not detected, for example, in a case where only two dice are detected, identification data is created for only 2 sets, identification data **1** and **2**.

In addition, the data table is transmitted from the IC tag reader **43** to the CPU **81**, and then the CPU **81** receives it to analyze the number of dots on a die and the like.

An infrared camera capturing data table is described with reference to FIG. **14**E.

The infrared camera capturing data table is a data table showing dot patterns of the infrared absorption inks applied to the dice **40** and location data of the dice **40** on the playing board **41**a.

For example, regarding the die **40**a shown in FIG. **6**E, in the infrared camera capturing data table, the CPU (not shown) inside the infrared camera **45** stores −50 for X and 55 for Y as location data, stores "O" for **181**, **182**, **184**, **186**, and **187**, to which the infrared absorption inks are being applied, and stores "X" for **183** and **185**, which are not being applied. The same is true of the dice **40**b and **40**c.

In addition, this data table is transmitted from the infrared camera **45** to the CPU **81**, and then the CPU **81** receives it to analyze the number of dots on a die and the like.

A dot pattern data classification table is described with reference to FIG. **15**E.

According to this table, colors as the classification for the dice **40** are set so as to correspond to dot combinations to which the infrared absorption ink is applied, among the abovementioned dots **181** to **183** in FIG. **6**E. "O" indicates that the infrared absorption ink is applied to the dot, and "x" indicates that the infrared absorption ink is not applied to the dot.

For example, in a case where the infrared camera capturing data table described in FIG. **14**E is transmitted to the CPU **81** from the infrared camera **45**, the CPU **81** determines the classification of the dice **40** as "red" by comparing the infrared camera capturing data table with the dot pattern data classification table.

A number of dots-dot pattern data table is described with reference to FIG. **16**E.

According to this table, numbers as the number of dots on the dice **40** are set so as to correspond to dot combinations to which the infrared absorption ink is applied, among the abovementioned dots **184** to **187** in FIG. **5**E. "O" indicates that the infrared absorption ink is applied to the dot, and "X" indicates that the infrared absorption ink is not applied to the dot.

For example, in a case where the infrared camera capturing data table shown in FIG. **14**E is transmitted from the infrared camera **45** to the CPU **81**, the CPU **81** determines the number of dots on the dice **40** as "five" by comparing the infrared camera capturing data table thus received with the dot pattern data classification table.

Display Example

A bet start instruction image is described with reference to FIG. **17**E.

The bet start instruction image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** before the CPU **81** accepts a bet from each game terminal **3**.

This bet start instruction image instructs a dealer to touch a "bet start" button. When a touch panel **211** detects that the dealer has touched the "bet start" button, the touch panel **211** transmits a bet start instruction signal to the CPU **81** via a communication interface **95**.

A bet end not recommended image is described with reference to FIG. **18**E.

This bet end not recommended image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** while the CPU **81** accepts a bet from each game terminal **3**.

This bet end not recommended image instructs the dealer not to touch a "bet end" button.

A bet end instruction image is described with reference to FIG. **19**E.

The bet end instruction image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** after elapse of a predetermined time from when the CPU **81** starts accepting a bet from each game terminal **3**.

This bet end instruction image instructs the dealer to touch the "bet end" button. When the touch panel **211** detects that the dealer has touched the "bet end" button, the touch panel **211** transmits a bet end instruction signal to the CPU **81** via the communication interface **95**.

With reference to FIG. **20**E, a display example of the display device **30** of each of the game terminals **3** is described.

An image displayed on FIG. **20**E reports to each of the game terminal **3** that acceptance of bets has ended. A player can recognize that the acceptance of bets has ended by recognizing that a message "NO MORE BETS" is displayed.

With reference to FIG. **21**E, a display example on the display device **330** of each of the game terminals **3** is described.

An image shown in FIG. **21**E shows a case in which a controller **2** entitles a predetermined game terminal **3** to perform a second shaking motion, the game terminal **3** is operated by pushing the shake button **301**, and then the dice movable unit **4** performs the second shaking motion.

More specifically, a display is performed in which an image that is displayed while the shake button **301** is operated is shaken. In the present embodiment, it is shown that the display screen illustrated in FIG. **20**E is shaken.

Since almost as soon as the second shaking motion is performed, a display is performed in which a display screen of the display device **330** of the game terminal **3** is shaken, a player can feel an effect that has been caused by the one's operation, and another player also can simultaneously know that the dice are being shaken.

<Flow of Processing>

Subsequently, with reference to FIGS. **22**E to **27**E, processing of a gaming system **1** according to the present embodiment is described. FIGS. **22**E to **26**E are flowcharts showing processing of the gaming system **1**. Furthermore, FIG. **27**E is a flowchart showing number of dots on dice detection processing of FIG. **26**E.

First, in Step S**1**, the CPU **81** displays the bet start instruction image (see FIG. **17**E) on the display screen **210**a of the dealer used display **210**. It should be noted that, whether or not the bet start instruction image is displayed may be determined according to a dealer's level with reference to the instruction image display determination (see FIG. **11**E).

Thus, according to the dealer's level, it becomes possible to determine whether the bet start instruction image is displayed on the display screen **210**a of the dealer used display **210**.

In Step S**2**, the CPU **81** determines whether the bet start instruction signal has been received from the touch panel **211** disposed on the dealer used display **210**. In the case of a NO determination, the CPU **81** returns the processing to Step S**2**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**3**. In Step S**3**, the CPU **81** transmits the bet start signal to each of the game terminals **3**. Then, the CPU **111** of each of the game terminals **3** starts accepting bets upon receiving the bet start signal (Step S**4**).

In Step S**6**, the CPU **81** of the controller **2** determines whether or not a predetermined time has elapsed. More specifically, the CPU **81** starts to measure a predetermined lapse of time t by the timer **131**, compares the predetermined lapse of time t with a predetermined time T**1** stored in the ROM **82**, and determines whether the predetermined lapse of time t measured by the timer **131** has reached the predetermined time T**1**. In the case of a NO determination, the CPU **81** returns the processing to Step S**6**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**7** of FIG. **23**E.

In Step S**7** of FIG. **23**E, the CPU **81** displays the bet end instruction image (see FIG. **18**E) on the display screen **210**a of the dealer used display **210**. It should be noted that, whether or not the bet end instruction image is displayed may be determined according to a dealer's level with reference to the instruction image display determination (see FIG. **11**E).

In Step S**8**, the CPU **81** determines whether the bet end instruction signal has been received from the touch panel **211** disposed on the dealer used display **210**. In the case of a NO determination, the CPU **81** returns the processing to Step S**8**, and in the case of a YES determination, the CPU **81** advances the processing to Step S**9**. In Step S**9**, the CPU **81** transmits the bet end signal to each game terminal **3**. At each of the game terminals **3**, the CPU **81** performs bet acceptance end processing (Step S**11**) upon receiving the bet end signal (Step S**10**). The bet acceptance end processing is processing that makes betting not possible, and in which the CPU **111** in the terminal control unit **110** displays on the display device **330** an image that notifies that the acceptance of bets shown in FIG. **20**E has ended.

In Step S**12**, the CPU **111** of the game terminal **3** transmits bet data to the controller **2**. Here, the bet data is information relating to a normal bet input and a side bet input that have been performed in each of the game terminals **3**. In addition, information is included that indicates whether a bet, which is stored in the bet existence determination table shown in FIG. **12**E, has been performed or not. That is, in a case in which a bet has been performed at a game terminal **3**, a CPU **111** of the game terminal **3** transmits data indicating that a bet has been performed and data indicating an amount of the bet to the controller **2**.

In Step S**13**, the CPU **81** of the controller **2** receives bet information from each of the game terminals **3**. Then, the CPU **81** of the controller **2** stores the bet data thus received in the RAM **83** (Step S**14** of FIG. **24**E).

This is the processing relating to a bet so far. Herewith, even an inexperienced dealer can perform start operations for bet placement and end operations according to instructional images.

In Step S**15**, the CPU **81** of the controller **2** transmits a first shaking motion start signal to the dice movable unit **4**. Here, in the present embodiment, the first shaking motion indicates that a subtle oscillation of an extent the does not roll the dice **40** is applied to the playing board **41**a, and the first shaking motion start signal is a signal that orders starting of the first shaking motion.

Then, in Step S**16**, the shake device **41** of the dice movable unit **4** receives the first shaking motion start signal from the controller **2** and starts the first shaking motion (Step S**17**). That is, by oscillating the playing board **41**a subtly, the dice **40** are oscillated subtly. It should be noted that the first shaking motion is executed continuously until a second shaking motion (described later) is performed.

In Step S**18**, the CPU **81** of the controller **2** which transmitted the first shaking motion start signal in Step S**15** reads the bet data stored in the RAM **83**, and compares the value. More specifically, the CPU **81** compares the value indicating the amount of the bet included in the bet data and obtains the number of the game terminal **3** which represents the largest value. Then, the CPU **81** determines the game terminal **3** representing the largest value as the game terminal **3** that performs the second shaking motion (Step S**19**).

Here, the second shaking motion refers to an oscillation of which the amplitude is larger than that of the first shaking motion and enough to be able to roll the dice **40**.

In Step S**20**, the CPU **81** of the controller **2** transmits a second shaking motion permission signal to the game terminal **3** thus determined in Step S**19**.

Then, the CPU **111** of the game terminal **3** which has received the second shaking motion permission signal from the controller **2** (Step S**21**) turns on a shake button lamp **305** (Step S**22**). Thus, the player can recognize that the entitlement to perform the second shaking motion is given to the player. It should be noted that, at this time, it is preferable for an operation of the shake button **301** in the game terminals **3** to which the entitlement to perform the second shaking motion is not given to become ineffective.

In Step S**23** of FIG. **25**E, the CPU **111** of the game terminal **3** determines whether the shake button **301** has been operated. In a case of a NO determination, the CPU **111** returns the processing to Step S**23**. In a case of a YES determination, the CPU **111** advances the processing to Step S**24**.

In Step S**24**, the CPU **111** of the game terminal **3** transmits an operation signal that indicates that the shake button **301**

has been operated. Then, the CPU **81** of the controller **2** which has received the operation signal from the game terminal **3** (Step S**25**) transmits the second shaking motion start signal to the dice movable unit **4** and the game terminal **3** (Step S**26**). Here, in the present embodiment, the CPU **81** of the controller **2** transmits the second shaking motion start signal to all of the game terminals **3**.

Then, the dice movable unit **4** that has received the second shaking motion start signal from the controller **2** (Step S**27**) performs the second shaking motion (Step S**28**). Here, in the present embodiment, the second shaking motion rolls the dice **40** by causing the playing board **41**a to momentarily move larger than that in the first shaking motion.

On the other hand, the CPU **111** of the game terminal **3** that has received the second shaking motion start signal from the controller **2** (Step S**29**) performs image shaking processing (Step S**30**). As shown in FIG. **21**E, this image shaking processing is processing that gives an impression such as a momentary shake of the display device **330** to the player, almost as soon as the dice movable unit **4** performs the second shaking motion. In this case, it is preferable to perform this processing longer than a necessary time that the second shaking motion is performed so as not to be recognized as a display defect of the display device **330**. It should be noted that a change may be performed in conjunction with the second shaking motion.

This allows the player who operated to feel their own operation having been actually reflected, and can psychologically lead the other players so as to raise their expectations for a result of their bet after performing the second shaking motion. Thus, this can give the players the feeling that they share live aspects.

In Step S**31**, the shaking device **41** of the dice movable unit **4** performs a shake end motion. More specifically, the shake end motion is an oscillation of which the amplitude is smaller than that of the second shake motion and in which an oscillation of an extent that the dice **40** are not rolled is performed for a predetermined time. For example, in a case in which the dice **40** are overlapping each other or leaning at a tilt against the cover member **44**, the numbers of dots on the dice **40** cannot be identified correctly. Therefore, by providing an oscillation of an extent that the dice **40** are not rolled, the overlapping or tilting can be corrected, and thus the numbers of dots can be identified correctly.

In Step S**32** of FIG. **26**E, the dice movable unit **4** performs number of dots on dice detection processing. The details thereof are described later. In Step S**33**, the dice movable unit **4** transmits dice information. This dice information includes information of a number of dots on the dice **40** thus detected in Step S**32**.

When the CPU **81** of the controller **2** receives dice information from the dice movable unit **4** (Step S**34**), the CPU **81** performs award determination processing based on the dice information (Step S**35**). More specifically, the CPU **81** of the controller **2** refers to bet data included in the bet existence determination table stored in the RAM **83** and a multiplication ratio of the bet in the game, and determines an award for each of the game terminals **3**.

In Step S**36**, the CPU **81** of the controller **2** transmits the award data thus determined in Step S**35** to the game terminal **3** and ends the present flowchart.

The CPU **111** of a game terminal **3** that has received the award data from the controller **2** (Step S**37**) performs payout processing based on the award data, and ends the present flowchart.

FIG. **27**E is a flowchart showing number of dots on dice detection processing.

In Step S**71**, the CPU **81** determines whether identification data of the three dice has been received from the IC tag reader **43**. In the case of a YES determination, the CPU **81** advances the processing to Step S**73**, and in the case of a NO determination, the CPU **81** advances the processing to Step S**75**. More specifically, the CPU **81** determines whether there are three sets of identification data, which are identification data **1** to **3**, in the IC tag data table (see FIG. **13**E) received from the IC tag reader **43**.

In Step S**73**, the CPU **81** determines the number of dots on the three dice. More specifically, the CPU **81** determines the number of dots of the three dice by analyzing the identification data **1** to **3**. For example, in a case where the identification data is data as shown in FIG. **13**E, the number of dice of which type is red is "six", the number of dice of which type is white is "three", and the number of dice of which type is black is "five". Upon finishing the processing in Step S**73**, the CPU **81** terminates the number of dots detection processing.

In Step S**75**, the CPU **81** receives capturing data from the infrared camera. More specifically, the CPU **81** receives the infrared camera capturing data table (see FIG. **14**E) for each of the dice **40**a, **40**b, and **40**c, from the infrared camera **45**.

In Step S**77**, the CPU **81** determines numbers of dots on the dice. More specifically, the CPU **81** determines positions of the dice on the playing board **3**a based on the infrared camera capturing data table (see FIG. **14**E), determines types (colors) of the dice based on the infrared camera capturing data table (see FIG. **14**E) and the dot pattern data classification table (see FIG. **15**E), and determines numbers of the dice based on the infrared camera capturing data table (see FIG. **14**E) and the number of dots-dot pattern data table (see FIG. **16**E). This processing is executed for the three dice **40**a, **40**b, and **40**c. Upon terminating the processing in Step S**77**, the CPU **81** terminates the number of dots detection processing.

Thus, even in a case where, for example, a die is inclined and the number of dots thereof cannot be identified by the IC tag reader **43**, since the number of dots can be determined using the infrared camera **45**, the accuracy of detection and identification of numbers of dots can be improved. Descriptions regarding the present embodiment have been provided above. Although a case has been described in which the number of dice **40** is three according to the present embodiment, the number of in the present invention is not limited to three and, for example, the number of the dice may be five.

In the present embodiment, although the controller of the present invention is described for a case of being configured from a CPU **81** which the main controller **80** includes and a CPU **111** which the game terminal **3** includes, the controller of the present invention may be configured by only a single CPU.

Furthermore, as shown in FIG. **2**E, in the present embodiment, although the game terminals **3** are disposed so as to face the controller **2** that the dealer **5** operates, the present invention is not limited thereto. For example, a configuration as shown in FIGS. **28**E and **29**E may be arranged.

FIG. **28**E is a block diagram showing a modified example relating to arrangement. A gaming machine **1** according to the present embodiment includes a dice movable unit **4**, a history display unit **91**, and a plurality of game terminals **3** (for example, 8). Then, as shown in FIG. **28**E, the game terminals **3** are disposed circularly and the dice movable unit **4** is disposed in the center thereof. Furthermore, the history display unit **4** is disposed above the dice movable unit. That is, the game terminals **3** are disposed around the dice

movable unit **4** so as to surround the dice movable unit **4**. Then, although the history display unit **4** is disposed above the dice movable unit **4** so as to be visually recognized by each player playing at each of a plurality of the game terminals **3** and around the gaming system **1**, in this case, it is preferable to install a display device that can display a screen on both sides thereof.

FIG. **29**E is a block diagram showing a modified example of arrangement. In the arrangement shown in FIG. **29**E, two history display units **91** are disposed behind the plurality of the game terminal **3** so as to be visually recognizable by each player at a plurality of the game terminal **3** or around the game device. A plurality of the game terminals **3** is disposed so as to surround the dice movable unit **4**. More specifically, two station groups are provided, each of which has four game terminals, and these are disposed at locations facing each other across the dice movable unit **4**. That is, players at the one four stations visually recognize the one history display unit **91** disposed behind the other four stations, and players at the other four stations visually recognize the other history display unit **91** disposed behind the one four stations **4**.

Furthermore, in the present embodiment, although the history display unit **91** is installed to be separate from the external large-size monitor **500**, the present invention is not limited thereto. For example, a display screen which is displayed on the history display unit **91** and a display screen which is displayed on the external large-size monitor **500** may be displayed simultaneously, and it may also be configured so that a dealer switches those alternately depending on situations.

Although embodiments of the present invention are described above, they are merely exemplified specific examples, and the present invention is not particularly limited thereto. Specific configurations such as each means can be modified appropriately. Moreover, it should be understood that the advantages described in association with the embodiments are merely a listing of most preferred advantages, and that the advantages of the present invention are by no means restricted to those described in connection with the embodiments.

Embodiments of the present invention are described below with reference to the accompanying drawings.

Although details are described later, as shown in FIG. **1**F, dice **70** (**70**a, **70**b, and **70**c) are configured in three-piece structure including a core portion **71** of a substantially cubic shape, an intermediate portion **72** which covers the overall core portion **71**, and a covering portion **73** which covers the overall intermediate portion **72**. The core portion **71** and the intermediate portion **72** are made of foam members, and in particular, the intermediate portion **72** is made of a form member with a higher foam expansion ratio than the core portion **71**, i.e. a hard foam member.

Moreover, the RFID tags **51** to **56** are disposed at six faces of the core member **71** in a substantially cubic shape, respectively (see FIG. **4**F with respect to the RFID tags **54** and **56**), and the RFID tags **51** to **56** are held in a contacted state between the core portion **71** and the intermediate portion **72**.

FIG. **2**F is a perspective view schematically showing an example of a gaming machine according to the embodiment of this invention. FIG. **3**F is an enlarged view of a playing unit of the gaming machine shown in FIG. **2**F. As shown in FIG. **2**F, a gaming machine **1** according to the present embodiment includes a housing **2** as a main body portion, a playing unit **3** that is provided substantially at the center of the top face of the housing **2** and in which a plurality of dice **70** are rolled and stopped, a plurality of stations **4** disposed so as to surround the playing unit **3**, and a dealer used display **210** that is positioned so as not to be visually recognizable by a player seated at each station **4**. The station **4** includes an image display unit **7**. A bet start instruction image or a bet end instruction image, for example, is displayed on the display screen **210**a of the dealer used display **210**. The player seated at each station **4** can participate in a game by predicting numbers of dots on the dice **70** and performing a normal bet input and a side bet input.

The gaming machine **1** includes a housing **2** as a main body portion, a playing unit **3** that is provided substantially at the center of the top face of the housing **2** and in which a plurality of dice **70** are rolled and come to rest, a plurality of stations **4** (ten in the present embodiment) disposed so as to surround the playing unit **3**, and a dealer used display **210** that is positioned so as not to be visually recognizable by a player seated at each station **4**.

The station **4** include a game media receiving device **5** into which game media such as medals to be used for playing the game are inserted, a control unit **6**, which is configured with multiple control buttons by which a player enters predetermined instructions, and an image display unit **7**, which displays images relating to a bet table. The player may participate in a game by operating the control unit **6** or the like while viewing the image displayed on the image display unit **7**.

A payout opening **8**, from which a player's game media are paid out, are provided on the sides of the housing **2** on which each station **4** is provided. In addition, a speaker **9**, which can output sound, is disposed on the upper right of the image display unit **7** on each of the stations **4**.

A control unit **6** is provided on the side part of the image display unit **7** on each of the stations **4**. As viewed from a position facing the station **4**, in order from the left side are provided a select button **30**, a payout (cash-out) button **31**, and a help button **32**.

The select button **30** is a button that is pressed when confirming a bet operation after the bet operation is complete. Furthermore, in a case other than the bet operation, the button is pressed when a player confirms an input performed.

The payout button **31** is a button which is usually pressed at the end of a game, and when the payout button **31** is pressed, game media corresponding to credits that the player has acquired is paid out from the payout opening **8**.

The help button **32** is a button that is pressed in a case where a method of operating the game is unclear, and upon the help button **32** being pressed, a help screen showing various kinds of operation information is displayed immediately thereafter on the image display unit **7**.

The playing unit **3** is configured so as to allow a plurality of dice to roll and stop. The present embodiment is configured to use three dice **70** (dice **70**a, **70**b, and **70**c) at the playing unit **3**.

A speaker **221** and a lamp **222** are disposed around the playing unit **3**. The speaker **221** performs rendered effects by outputting sounds while the dice **70** are being rolled. The lamp **222** performs rendered effects by emitting lights while the dice **70** are being rolled.

The playing unit **3** includes a playing board **3**a to roll and then stop the dice **70**. An RFID tag reader **16** is provided below the playing board **3**a.

Since the playing board **3**a is formed to be substantially planar, as shown in FIG. **3**F, the dice **70** are rolled by oscillating the playing board **3**a substantially in the vertical direction with respect to the horizontal direction of the

playing board **3**a. Then, the dice **70** are stopped after the oscillation of the playing board **3**a ceases. The playing board **3**a is oscillated by a CPU **81** (described later) driving an oscillating motor **300**.

Furthermore, as shown in FIG. **3**F, the playing unit **3** is covered with a cover member **12** of which the entire upper area is made of a transparent acrylic material formed in a hemispherical shape, and regulates the rolling area of the dice **70**. In the present embodiment, an infrared camera **15**, which detects a number of dots on the dice **70**, is provided at the top of the cover member **12**. In addition, an RFID system using an RFID tag (described later) is provided in order to detect a number of dots on the dice **70**.

FIG. **4**F is an exploded perspective view of a die **70** and FIG. **5**F is a cross sectional of a die **70**. The core portion **71** is a substantially cubic member which is formed by cutting off corners of the cube. At the substantially central portions of each of the faces of the die **70** of the core portion **71**, concave portions are formed in order to embed the RFID tags, and the RFID tags **51** to **56** are disposed at each of the six concave portions. Thus, the core portion **71** is an example of a first foam member.

The intermediate portion **72** is configured by combining a first intermediate portion **72**a with a second intermediate portion **72**b which are larger than the core portion **71** and are formed by dividing a substantially cubic body in half. The first intermediate portion **72**a and the second intermediate portion **72**b have concave portions formed on the insides thereof that each fit half of the core portion **71**. Then, for example, by covering the core portion **71** on which the RFID tags are embedded, by the first intermediate portion **72**a from above and the second intermediate portion **72**b from below, the core portion **71** is covered by the intermediate portion **72**. Thus, the intermediate portion **72** is an example of the second foam member that covers the outside of the first foam member (the core portion **71**).

The covering portion **73** is configured by combining a first covering portion **73**a and a second covering portion **73**b, which are slightly larger than the intermediate portion **72** and are formed by dividing a substantially cubic body in half. The first covering portion **73**a and the second covering portion **73**b have concave portions formed on the insides thereof that each fit half of the intermediate portion **72**. For example, by covering the intermediate portion **72** by the first covering portion **73**a from left and the second covering portion **73**b from right, the intermediate portion **72** is covered by the covering portion **73**. Thus, the covering portion **73** is an example of a covering member that covers the outside of the second foam member (the intermediate portion **72**).

As a foam member for configuring the core portion **71** and the intermediate portion **72**, polystyrene foam, polyurethane foam, and the like can be utilized. In this case, both the core portion **71** and the intermediate portion **72** may be made of polystyrene foam or polyurethane foam, or the one may be made of polystyrene foam and the other may be made of polyurethane foam. Furthermore, in the present embodiment, the foam expansion ratio of the core portion **71** is 40 times to 50 times, which is soft, and foam expansion ratio of the intermediate portion **72** is 3 to 4 times and a relatively hard foam member is used. Here, the foam expansion ratio is a value that indicates a multiple of expansion relative to an original volume. That is, when insert molding, for example, if the foam expansion ratio is only 40 to 50 times, the foam member cannot resist heat. Therefore, in the present embodiment, a foam expansion ratio of the outer foam member, i.e. the intermediate portion **72**, is set to be relatively hard at 3 to 4 times.

Thus, the core portion **71** and the intermediate portion **72** are an example of the first foam member (the core portion **71**) and the second foam member (the intermediate portion **72**) made of urethane. Furthermore, the core portion **71** and the intermediate portion **72** are an example of the first foam member (the core portion **71**) and the second foam member (the intermediate portion **72**) made of polystyrene foam. In addition, the intermediate portion **72** is an example for the second foam member having a lower foam expansion ratio than the first foam expansion ratio with respect to the original volume. Moreover, the core portion **71** is an example for the first foam member of which the foam expansion ratio is 40 to 50 times. Additionally, the intermediate portion **72** is an example for the second foam member of which the foam expansion ratio is 3 to 4 times.

Furthermore, as a member configuring the covering portion **73**, ABS resin, polypropylene, urethane, and the like are applicable. Also, in the present embodiment, an object configured into a coin by covering an RFID tag with a hard member such as epoxy resin is utilized as the RFID tags **51** to Therefore, since the RFID tags **51** to **56** have high rigidity, a member with flexibility such as urethane is applicable to members that configure the core portion **71**, the intermediate portion **72**, and the covering portion **73**. In addition, by applying urethane, it is possible to roll the dice **70** easily.

It should be noted that it is possible to apply a film-type tag as the RFID tag. In this case, it is not necessary to form concave portions in the core portion **71**, and it is possible to mount by attaching directly on the core portion **71**. On the other hand, in order to reduce flexure of the RFID tag in the dice **70**, it is particularly preferable that a hard plastic member such as ABS resin is applied to the covering portion **73**.

When integrating the core portion **71** with which the RFID tags **51** to **56** are mounted, the intermediate portion **72**, and the covering portion **73**, as shown in FIG. **5**F, the RFID tags **51** to **56** are retained in a state held between the core portion **71** and the intermediate portion **72**. In the present embodiment, the dice **70** are cubic bodies having beveled sides of 88 mm, and the RFID tags **51** to **56** are disposed interiorly 10 mm from the surface of the dice **70**, i.e. the surface of the covering portion **73**. Thus, the RFID tags **51** to **56** are an example of an RFID tag that is disposed at each face of the first foam member (the core portion **71**) and held between the first foam member (the core portion **71**) and the second foam member (the intermediate portion **72**).

The RFID tags **51** to **56** are read by the RFID tag reader **16** disposed below the playing board **3**a.

FIG. **6**F shows an RFID tag readable areas by the RFID tag reader **16** disposed below the playing board **3**a.

Here, a way of reading information stored in the RFID tag by the RFID tag reader **16** is described below.

The RFID tag reader **16** is a non-contact type RFID tag reader. For example, it is possible to read information stored in the RFID tag by RFID system (Radio Frequency Identification). The RFID system performs near field communication that reads and writes data stored in semi-conductor devices by an induction field or radio waves in a non-contact manner. In addition, since this technology is known conventionally and is described in Japanese Unexamined Patent Application Publication No. H8-21875, an explanation thereof is abbreviated.

In the present embodiment, a plurality of RFID tags is read by a single RFID tag reader **16**. Under the abovementioned RFID system, an anti-collision function can be

employed which can read a plurality of RFID tags by a single reader. The anti-collision function includes FIFO (first in first out) type, multi-access type, and selective type, and communicates with a plurality of the RFID tags sequentially. The FIFO type is a mode to communicate with a plurality of the RFID tags sequentially in the order that each RFID tag enters an area in which an antenna can communicate therewith. The multi-access type is a mode that is able to communicate with all the RFID tags, even if there is a plurality of the RFID tags simultaneously in the area in which an antenna can communicate with the RFID tags. The selective type is a mode that is able to communicate with a specific RFID tag among a plurality of the RFID tags in the area in which an antenna can communicate therewith. By employing the abovementioned modes, it is possible to read a plurality of the RFID tags with a single RFID tag reader.

In addition, reading the RFID tags may not only be done by the non-contact type, but also a contact type. In addition, the RFID tag reader is not limited thereto, and anything that is appropriately designed with the object of being read may be employed.

In the present embodiment, a readable area of the RFID tag reader **16** is 10 mm in substantially a vertical direction from substantially an entire horizontal face on the playing board **3**a. Therefore, in a case in which the dice come to rest, the RFID tag that is readable is only the RFID tag of the die **70** corresponding to a face that faces and contacts the playing board **3**a, and it is physically impossible for information of other RFID tags to be read by the RFID tag reader **16**.

More specifically, with reference to FIG. **6**F, a face of the die **70** (for example, a face of which the number of dots is six) is in contact with the playing board **3**a. Furthermore, the RFID tag is embedded substantially at the center of each face of the die **70** (the RFID tags for the faces on which the numbers of dots are "3" and "4" are not shown). An RFID tag **51** is embedded substantially at the center of a face on which the number of dots is six. An RFID tag **52** is embedded substantially at the center of a face on which the number of dots is five. An RFID tag **53** is embedded substantially at the center of a face on which the number of dots is one. An RFID tag **54** is embedded substantially at the center of a face on which the number of dots is two.

Furthermore, since the number of dots of a face, opposing a face on which an RFID tag is embedded, is determined as the number of dots of the die **70**, "one" is stored, as data of the number of dots, in the RFID tag **51** on the face of which the number of dots is "six". "Two" is stored, as data of the number of dots, in the RFID tag **52** on the face of which the number of dots is "five". "Six" is stored, as data of the number of dots, in the RFID tag **53** on the face of which the number of dots is "one". "Five" is stored, as data of the number of dots, in the RFID tag **54** on the face of which the number of dots is "two". "Three" is stored, as data of the number of dots, in the RFID tag (not shown) on the face of which the number of dots is "four". Finally, "four" is stored, as data of the number of dots, in the RFID tag (not shown) on the face of which the number of dots is "three".

Here, only the RFID tag **51** exists in the readable area of the RFID tag reader **16**. Therefore, the number of dots (in this case, "one") of a face, opposing the face on which the RFID tag **51** is embedded, is determined as the number of dots of the die **70**.

The infrared camera **15** in the present embodiment includes an imaging device (CCD camera) for shooting the dice **70** as an object of shooting, and detects the number of dots appearing on the dice **70** based on an imaging signal from the imaging device. Therefore, it is not possible to detect the number of dots appearing on the dice **70** accurately in a state in which a plurality of the dice **70** are overlapping each other. However, in the present embodiment, by moving the table **3**a with subtle oscillation and then ceasing the table **3**a, even if a plurality of the dice **70** is overlapping each other, it is possible to make the dice come to rest after breaking up the overlapping state of the dice. As a result of this, it is possible to detect the number of dots appearing on the dice **70** accurately. Thus, in the present embodiment, accurate detections of a number of the dots can be achieved by using both the infrared camera **15** and the RFID tag reader **16**.

FIG. **7**F shows an example of a display screen displayed on an image display unit. As shown in FIG. **7**F, an image display unit **7** is a touch-panel type of liquid crystal display, on the front surface of which a touch panel **35** is attached, allowing a player to perform selection such as of icons displayed on a liquid crystal screen **36** by contacting the touch panel **35**, e.g., with a finger.

A table-type betting board (a bet screen) **40** for predicting the number of dots of the dice **70** is displayed in a game at a predetermined timing on the image display unit **7**.

A detailed description is now provided regarding the bet screen **40**. On the bet screen **40** are displayed a plurality of normal bet areas **41** and a side bet area **42**. The plurality of normal bet areas **41** includes a normal bet area **41**A, a normal bet area **41**B, a normal bet area **41**C, a normal bet area **41**D, a normal bet area **41**E, a normal bet area **41**F, a normal bet area **41**G, and a normal bet area **41**H. By contacting the touch panel **35**, e.g., with a finger, the normal bet area **41** is designated, and by displaying chips in the normal bet area **41** thus designated, a normal bet operation is performed. Furthermore, by contacting the touch panel **35**, e.g., with a finger, the side bet area **42** is designated, and by displaying chips in the side bet area **42** thus designated, a side bet operation is performed.

A unit bet button **43**, a re-bet button **43**E, a payout result display unit **45**, and a credit amount display unit **46** are displayed at the right side of the side bet area **42** in order from the left side.

The unit bet button unit **43** is a group of buttons that are used by a player to bet chips on the normal bet area **41** and the side bet area **42** designated by the player. The unit bet button unit **43** is configured with four types of buttons including a 1 bet button **43**A, a 5 bet button **43**B, a 10 bet button **43**C, and a 100 bet button **43**D. It should be noted that in the case of an incorrect bet operation, the player can start a bet operation again by touching a re-bet button **43**E.

Firstly, the player designates the normal bet area **41** or the side bet area **42** using a cursor **47** by way of contacting the touch panel **35**, e.g., with a finger. At this time, contacting the 1 bet button **43**A, e.g., with a finger, allows for betting one chip at a time (number of chips to be bet increases one by one in the order of 1, 2, 3, every time the 1 bet button **43**A is contacted, e.g., by a finger). Similarly, when contacting the 5 bet button **43**B, e.g., with a finger, five chips at a time can be bet (number of chips to be bet increases five by five in the order of 5, 10, 15, every time the 5 bet button **43**B is contacted, e.g., by a finger). Similarly, when contacting the 10 bet button **43**C, e.g., with a finger, ten chips at a time can be bet (number of chips to be bet increases ten by ten in the order of 10, 20, 30, every time the 10 bet button **43**C is contacted, e.g., by a finger). Similarly, when contacting the 100 bet button **43**D, e.g., with a finger, a hundred chips at a time can be bet (number of chips to be bet increases hundred by hundred in the order of 100, 200, 300, . . . every time the

100 bet button **43**D is contacted, e.g. by a finger). The number of chips bet up to the current time is displayed as a chip mark **48**, and the number displayed on the chip mark **48** indicates the number of bet chips.

The number of bet chips and payout credit amount for a player in a previous game are displayed in the payout result display unit **45**. The number calculated by subtracting the number of bet chips from the payout credit amount is a newly acquired credit amount for the player in the previous game.

The credit amount display unit **46** displays the credit amount which the player possesses. The credit amount decreases according to the number of bet chips (1 credit amount for 1 chip) when the player bets chips. If the bet chips are entitled to an award and credits are paid out, the credit amount increases in accordance with the number of paid out chips. It should be noted that the game is over when the player's credit amount becomes zero.

The normal bet area **41** in the bet screen **40** is described next. The normal bet areas **41**A and **41**B are portions where the player places a bet on a predicted sum of dots appearing on the dice **70**A to **70**C. In other words, the player selects the normal bet area **41**A if the predicted sum falls in a range of 4 to 10, or the normal bet area **41**B if the predicted sum falls in a range of 11 to 17. Odds are set to 1:1 (2 chips are paid out for 1 chip bet).

The normal bet area **41**C is a portion where the player places a bet, predicting that two dice **70** have the same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1), (2, 2), (3, 3), (4, 4), (5, 5), and (6, 6), and the odds are set to 1:10.

The normal bet area **41**D is a portion where the player places a bet, predicting that all three dice have the same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), and (6, 6, 6), and the odds are set to 1:30.

The bet area **41**E is a portion where the player places a bet on a predicted number of dots appearing commonly on all three dice. In other words, the player places a bet on one of the combinations of (1, 1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), or (6, 6, 6), and the odds are set to 1:180.

The normal bet area **41**F is where the player places a bet, predicting a total, a summation of dots appearing on the three dice. Odds are set according to the occurrence frequency of the total. For example, if the total is 4 or 17, odds are set to 1:60; if the total is 5 or 16, odds are set to 1:30; if the total is 6 or 15, odds are set to 1:18; if the total is 7 or 14, odds are set to 1:12; if the total is 8 or 13, odds are set to 1:8; if the total is 9 or 12, odds are set to 1:7; and if the total is 10 or 11, odds are set to 1:6.

The bet area **41**G is a portion where the player places a bet on predicted dots appearing on the two dice selected from the three, and the odds are set to 1:5. The normal bet area **41**H is a region where the player places a bet on the number of dots appearing on the dice **70**, and the odds are set according to the number of dots of the dice **70** matching the predicted number of dots.

FIG. **8**F is a block diagram showing an internal configuration of the gaming machine shown in FIG. **2**F. A main control unit **80** of the gaming machine **1** includes a microcomputer **85**, which is configured with a CPU **81**, ROM **82**, RAM **83**, and a bus **84** that transfers data therebetween.

The CPU **81** is connected with an oscillating motor **300** via an I/O interface **90**. Furthermore, the CPU **81** is connected with a timer **131**, which can measure time via the I/O interface **90**. In addition, the CPU **81** is connected with a lamp **222** via the I/O interface **90**. The lamp **222** emits various colors of light for performing various types of rendered effects, based on output signals from the CPU **81**. Furthermore, the CPU **81** is connected with a speaker **221** via the I/O interface **90** and a sound output circuit **231**. The speaker **221** emits various sound effects for performing various types of rendered effects, based on output signals from the sound output circuit **231**. Furthermore, the I/O interface **90** is connected with the abovementioned infrared camera **15** and/or the RFID tag reader **16**, thereby transmitting and receiving information in relation to the number of dots of the three dice **70**, which comes to rest on the playing board **3**a, between the infrared camera **15** and/or the RFID tag reader **16**.

Here, the oscillating motor **300**, the infrared camera **15**, the RFID tag reader **16**, the lamp **222**, the sound output circuit **231**, and the speaker **221** are provided within a single composite unit **220**.

In addition, via a communication interface **95** connected to the I/O interface **90**, the main control unit **80** transmits and receives data such as bet information, payout information, and the like to and from each station **4**, as well as data such as bet start instruction images, bet start instruction signals, and the like to and from the dealer used display **210**.

The bet start instruction image is displayed by the CPU **81** on the display screen **210**a of the dealer used display **210** before the CPU **81** accepts a bet from each station **4**.

This bet start instruction image instructs a dealer to touch a "bet start" button. When a touch panel **211** detects that the dealer has touched the "bet start" button, the touch panel **211** transmits a bet start instruction signal to the CPU **81** via a communication interface **95**.

Furthermore, the I/O interface **90** is connected with a history display unit **91**, and the main control unit **80** transmits and receives information in relation to the number of dots on the die, to and from the history display unit **90**. It should be noted that, although the history display unit **91** is not shown in FIG. **2**F, it is installed at a position, which allows viewing by all of the players, or at a plurality of locations.

Furthermore, an external large-size monitor is connected to the I/O interface **90** through the controller **400**, and the main controller **80** transmits and receives image data and the like to and from the external large-size monitor **500**.

On the external large-monitor **500**, game advancement, game results, live images of dice rolling, a demonstration screen, and the like are displayed. This attracts the interest of people around the external large-size monitor **500**.

ROM **82** in the main control unit **80** is configured to store a program for implementing basic functions of the gaming machine **1**; more specifically, a program for controlling various devices which drive the playing unit **3**, a program for controlling each station **4**, and the like, as well as a payout table, data indicating a predetermined time T, data indicating a specific value TT, and the like.

RAM **83** is memory, which temporarily stores various types of data calculated by CPU **81**, and, for example, temporarily stores data bet information transmitted from each station **4**, information on respective number of dots that appear on the dice **70** transmitted from the infrared camera **15** and/or the RFID tag reader **16**, data relating to the results of processing executed by CPU **81**, and the like. A jackpot storage area is provided in the RAM **83**. In the jackpot storage area, the data indicating the number of playing media stored cumulatively is stored so as to correspond to each number of dots of matching dice. The data is provided to the station **4** at a predetermined timing, and a jackpot

image is displayed. The CPU **81** controls the oscillating motor **300**, which oscillates the playing unit **3**, based on data and a program stored in the ROM **82** and the RAM **83**, and oscillates the playing board **3**a of the playing unit **3**. Furthermore, after oscillation of the playing board **3**a ceases, a control processing associated with game progression, such as confirmation processing for confirming the number of dots on each of the dice **70** resting on the playing board **3**a.

In addition to the control processing described above, the CPU **81** has a function of executing a game by transmitting and receiving data to and from each station **4** so as to control each station **4**. More specifically, the CPU **81** accepts bet information transmitted from each station **4**. Furthermore, the CPU **81** performs win determination processing based on the number of dots on the dice **70** and the bet information transmitted from each station **4**, and calculates the amount of an award paid out in each station **4** with reference to the payout table stored in the ROM **82**.

FIG. **9**F is a block diagram showing an internal configuration of a station shown in FIG. **2**F. The station **4** includes a main body **100** in which an image display unit **7** and the like are provided, and a game media receiving device **5**, which is attached to the main body **100**. The main body **100** further includes a station control unit **110** and several peripheral devices.

The station control unit **110** includes a CPU **111**, ROM **112**, and RAM **113**.

ROM **112** stores a program for implementing basic functions of the station **4**, other various programs needed to control the station **4**, a data table, and the like.

Moreover, a decision button **30**, a payout button **31**, and a help button **32** provided in the control unit **6** are connected to the CPU **111**, respectively. The CPU **111** controls the execution of various corresponding operations in accordance with manipulation signals, which are generated in response to each button pressed by a player. More specifically, the CPU **111** executes various processing, based on input signals transmitted from the control unit **6** in response to a player's operation which has been inputted, and the data and programs stored in the ROM **112** and RAM **113**. Subsequently, the CPU **111** transmits the results to the CPU **81** in the main control unit **80**.

In addition, the CPU **111** in the main control unit **80** receives instruction signals from the CPU **81**, and controls peripheral devices which configure the station **4**. The CPU **111** performs various kinds of processing based upon the input signals supplied from the control unit **6** and the touch panel **35**, and the data and the programs stored in the ROM **112** and the RAM **113**. Then, the CPU **111** controls the peripheral devices which configure the station **4** based on the results of the processing. It should be noted that the mode whereby processing is performed is set for each processing depending on the content of the processing. For example, the former approach is applied to payout processing of game media for respective numbers of dots appearing on the dice, and the latter approach is applied to bet operation processing by a player.

Furthermore, a hopper **114**, which is connected to the CPU **111**, pays out a predetermined amount of game media through the payout opening **8**, receiving the instruction signals from the CPU **111**.

Moreover, the image display unit **7** is connected to the CPU **111** via a liquid crystal driving circuit **120**. The liquid crystal driving circuit **120** includes program ROM, image ROM, an image control CPU, work RAM, a video display processor (VDP), video RAM, and the like. Here, the program ROM stores an image control program with respect to the display functions of the image display unit **7**, and various kinds of selection tables. The image ROM stores dot data for creating an image to be displayed on the image display unit **7**, and dot data for displaying a jackpot image, for example. In addition, the image control CPU determines an image to be displayed on the image display unit **7**, selected from the dot data previously stored in the image ROM according to the image control program previously stored in the program ROM based on parameters specified by the CPU **111**. The work RAM is configured as a temporary storage means when executing the image control program by the image control CPU. The VDP forms an image corresponding to the display contents determined by the image control CPU and outputs the resulting image on the image display unit **7**. It should be noted that the video RAM is configured as a temporary storage device used by the VDP for creating an image.

As mentioned above, the touch panel **35** is attached to the front side of the image display unit **7**, and the information related to operation on the touch panel **35** is transmitted to the CPU **111**. The touch panel **35** detects an input operation by the player on a bet screen **40** and the like more specifically, selection of the normal bet area **41** and the side bet area **42** in the bet screen **40**, manipulation of the bet button unit **43** and the like, are performed by touching the touch panel **35**, and the information thereof is transmitted to the CPU **111**. Then, a player's bet information is stored in the RAM **113** based on the information stored. Furthermore, the bet information is transmitted to the CPU **81** in the main control unit **80**, and stored in a bet information storage area in the RAM **83**.

Moreover, a sound output circuit **126** and a speaker **9** are connected to the CPU **111**. The speaker **9** emits various sound effects for performing various kinds of rendered effects, based on output signals from the sound output circuit **126**. In addition, the game media receiving device **5**, into which game media such as coins or medals are inserted, is connected to the CPU **111** via a data receiving unit **127**. The data receiving unit **127** receives credit signals transmitted from the game media receiving device **5**, and the CPU **111** increases a player's credit amount stored in the RAM **113** based on the credit signals transmitted.

A timer **130**, which can measure time, is connected to the CPU **111**.

A gaming board **60** includes a CPU (Central Processing Unit) **61**, ROM **65** and boot ROM **62**, a card slot **63**S compatible with a memory card **63**, and an IC socket **64**S compatible with a GAL (Generic Array Logic) **64**, which are connected to one another via an internal bus.

The memory card **63** comprises nonvolatile memory such as compact flash (trademark) or the like, which stores a game program and a game system program.

Furthermore, the card slot **63**S has a configuration that allows the memory card **63** to be detachably inserted, and is connected to the CPU **111** via an IDE bus. Such an arrangement allows the kinds or content of the game provided by the station **4** to be changed by performing the following operation. More specifically, the memory card **63** is first extracted from the card slot **63**S, and another game program and another game system program are written to the memory card **63**. Then, the memory card **63** thus rewritten is inserted into the card slot **63**S. In addition, the kinds or content of the games provided by the station **4** can be changed by replacing the memory card **63** storing a game program and a game system program with another memory card **63** storing another game program and game system program. The game program includes a program for advancing a game and the

like. The game program also includes a program related to image data and sound data outputted during a game.

The GAL **64** is one type of PLD that has a fixed OR array structure. The GAL **64** includes multiple input ports and output ports and, upon receiving predetermined data via each input port, outputs output data that corresponds to the input data via the corresponding output port. In addition, an IC socket **64**S has a structure that allows the GAL **64** to be detachably mounted, and is connected to the CPU **111** via the PCI bus.

The CPU **61**, the ROM **65**, and the boot ROM **62**, which are connected to one another via the internal bus, are connected to the CPU **111** via the PCI bus. The PCI bus performs signal transmission between the CPU **111** and the gaming board **60**, as well as supplying electric power from the CPU **111** to the gaming board **60**. The ROM **65** stores country identification information and an authentication program. The boot ROM **62** stores a preliminary authentication program, a program (boot code) which instructs the CPU **61** to start up the preliminary authentication program, etc.

The authentication program is a program (forgery check program) for authenticating the game program and the game system program. The authentication program is defined to follow the procedure (authentication procedure) for confirming and authenticating that the game program and the game system program, which are to be acquired after the authentication, have not been forged, i.e. the procedure for authenticating the game program and the game system program. The preliminary authentication program is a program for authenticating the aforementioned authentication program. The preliminary authentication program is defined to follow the procedure for verifying that the authentication program has not been forged, i.e. the procedure for authenticating the authentication program (authentication procedure).

FIG. **10**F is a block diagram showing an example of a different configuration of the game device according to the present invention. It should be noted that identical numerals are used for the same members or members with the similar functions to those in the embodiments illustrated in FIGS. **1**F to **9**F. The game device **1** shown in FIG. **10**F is provided with a composite unit **220**, the history display unit **91**, and a plurality of stations **4** (e.g., **8**). The composite unit **220** is provided with various devices (not shown) for rolls dice. The history display unit **91** is disposed above the composite unit **220** so as to be visually recognizable by each player at a plurality of the stations **4** or from around the game device. The plurality of the stations **4** is disposed to be connected with each other around the composite unit **220**.

FIG. **11**F is a block diagram showing another example of another configuration of the game device according to the present invention. The arrangement of the plurality of the stations **4** and the history display unit **91** is different from the arrangement shown in FIG. **10**F. In the game device **1** shown in FIG. **11**F, two history display units **91** are disposed behind the plurality of the stations **4** so as to be visually recognizable by each player at a plurality of the stations **4** or from around the game device. The plurality of stations **4** is respectively disposed so as to surround the composite unit **220**. More specifically, two station groups are provided, each of which has four stations, and these are disposed at locations facing each other across the composite unit **220**. That is, players at the one of four stations **4** visually recognize the history display unit **91** disposed behind the other four stations **4**, and players at the other four stations **4** visually recognize the other history display units **91** disposed behind the one of four stations **4**.

FIG. **12**F is a diagram showing an example of an image displayed on a display screen of a history display unit. On the display screen of the history display unit **91**, display areas **91**a, **91**b, **91**c, and **91**d are set for displaying cumulative amounts of four types of progressive awards. Display areas **91**e, **91**f, **91**g, and **91**h are display areas for displaying the game history, and in the display area **91**e, information such as a number of dots in the last game before a present game is displayed.

"1", "2", "3", "6", and "Small" are displayed in order from the left as a display content of the display area **91**e. The leftmost "1" represents a number of dots on a blue die by being displayed in blue. The second "2" from the left represents a number of dots on a red die by being displayed in red. The third "3" from the left represents a number of dots on a white die by being displayed in white. The fourth "6" from the left represents a sum total value of each of the dice (blue, red, and white). The display areas **91**f to **91**h are similar to the display areas **91**e. In addition, "Small" is displayed, for example, in a case in which a sum total value of numbers of dots on the dice belongs to a numeral range of 4 to 10 among two numeral ranges 4 to 10 and 11 and 17, and "Big" is displayed in a case in which a sum total value of numbers of dots on the dice belongs to a numeral range of 11 to 17.

It should be noted that a plurality of LED luminous bodies (not shown) is disposed around the history display unit **91** and the plurality of LED luminous bodies emit light in various light emitting modes according to game advancement and the like.

According to the present embodiment as described above, since the core portion **71** and the intermediate portion **72** are made of foam members, weight reduction of the dice is possible. Furthermore, since the RFID tags **51** to **56** are disposed in the vicinity of the foam member with the three-piece structure of the core portion **71**, the intermediate portion **72**, and the covering portion **73**, buffering shock transmitted to the RFID tags **51** to **56** due to shock to the dice is possible by way of the foam member, whereby the RFID tags **51** to **56** can be protected. Furthermore, the RFID tags **51** to **56** are disposed between the core portion **71** and the intermediate portion **72**, and the intermediate portion **72** is made of a foam member that is relatively harder than the core member **71**. Therefore, an amount of deformation of the intermediate portion **72** due to a shock to the dice is reduced, and the shock is absorbed into the core portion **71**. As a result of this, it is possible to prevent failure such as by damage to an RFID tag due to deformation of the RFID tag along with deformation of the intermediate portion **72**. Thus, it is possible to provide a weight reduction in dice and dice that realize protection of the RFID tags thereof.

Furthermore, by configuring the core portion **71** and the intermediate portion **72** using urethane, as well as applying a foam member for a weight reduction, elasticity of the dice **70** is improved due to a property of urethane easily elastically deforming, thereby enabling dice to be provided which can be easily rolled. In this case, in particular, it is possible to provide dice that roll easily as a result of being made to bounce, by using a flexible member also for the covering member **73**. Furthermore, a weight reduction becomes possible by applying a foam member by configuring the core portion **71** and the intermediate portion **72** using polystyrene foam, and rigidity of the dice **70** is improved due to polystyrene foam, which is difficult to deform, whereby it is

possible to provide dice in which internal RFID tags can be reliably protected. Thus, by applying specific materials such as urethane or polystyrene foam for the material properties of the core portion **71** and the intermediate portion **72**, an effect dependent on a specific material can be included as well as a weight reduction.

Furthermore, using a member with a foam expansion ratio of 40 to 50 times for the core portion **71** and the member with foam expansion ratio of 3 to 4 times for the intermediate portion **72**, the outside of the dice becomes superior in rigidity and the inside thereof superior in shock-absorbing property, whereby it is possible to provide dice of reduced weight that can reliably protect internal RFID tags thereof.

Descriptions regarding the present embodiment have been provided above. Although a case has been described in which the number of dice **70** is three according to the present embodiment, the number of in the present invention is not limited to three and, for example, the number of the dice may be five. Furthermore, the shape of dice is not limited to a cubic body. For example, it is also possible to be adapted to an eight-faceted dice, and the core portion **71** and the intermediate portion **72** can be designed appropriately according to a shape of the dice.

In the present embodiment, although the controller of the present invention is described for a case of being configured from a CPU **81** which the main controller **80** includes and a CPU **111** which the station **4** includes, the controller of the present invention may be configured by only a single CPU.

Although embodiments of the present invention are described above, they are merely exemplified specific examples, and the present invention is not particularly limited thereto. Specific configurations such as each means can be modified appropriately. Moreover, it should be understood that the advantages described in association with the embodiments are merely a listing of most preferred advantages, and that the advantages of the present invention are by no means restricted to those described in connection with the embodiments.

First Embodiment

Embodiments of the present invention will be explained hereinafter with reference to the accompanying drawings.

FIG. **1**G is a flowchart showing an outline of an embodiment according to the present invention.

As described later in detail, first, a CPU **81** of a controller **2** transmits a start signal for reading a wireless IC tag **401** to a reader **62** (Step S**100**).

Then, the CPU **81** of the controller **2** that receives data of the wireless IC tag **401** read by the reader **62** calculates address information according to the unique ID of the wireless IC tag **401** and a predetermined function (Step S**200**).

Based on the address information thus calculated, the reader **62** reads number of dots information and a CRC value as error detection information from the wireless IC tag **401**, and sends it to the controller **2** (Step S**300**).

The CPU **81** of the controller **2** calculates the CRC value with the unique ID, number of dots information, and serial information stored in the wireless IC tag **401** as seed values (Step S**400**).

Furthermore, the CPU **81** compares the CRC value of the wireless IC tag **401** with the CRC value calculated in Step S**400** (Step S**500**). If the values are identical, it can be recognized that reading was correctly performed, and the CPU **81** performs processing of number of dots information (Step S**600**, Step S**700**). If those values are not identical, it can be recognized that reading was not correctly performed, and read error processing is performed (Step S**600**, Step S**800**).

FIG. **2**G is an overall view of a gaming machine **1** that provides a dice game.

The gaming machine **1** of the present embodiment includes the controller **2**, stations **3**, and a dice movable unit **4**.

Furthermore, a history display unit **91** and an external large-size monitor **500** are provided at a location visually recognizable from where players are playing at the stations **3**.

The controller **2** controls the entire gaming machine **1**.

In addition, in the present embodiment, the controller **2** includes a dealer used display **210** that is used by a dealer **5** who advances a game and a touch panel **211** provided at the dealer used display **210**, and executes control of the overall gaming machine **1** according to an operation of the dealer **5**.

The stations **3** are terminals that players operate.

The stations **3** accept bet operations by players sitting on chairs (not shown) provided in front of the stations **3** and perform processing to payout awards of games.

The station **3** includes an image display device **31**, a game media acceptance device that accepts game media such as medals inserted to an insertion opening **321** and used for a game, an operation unit **33** composed of a shake button **331** to which a predetermined instruction is inputted by a player, a game information display unit **34** for displaying information related to a game, and the like.

The player may participate in a game by operating the operation unit **33** or the like while viewing the image displayed on the image display device **31**.

In the present embodiment, a shake button **331** and a select button **332** are provided at the operation unit **33**.

The shake button **331** is a button for performing an instruction that allows a player to start rolling dice at a predetermined timing.

Furthermore, in a case other than the bet operation, the select button **332** is pushed for confirming the input that a player performed.

In addition, a speaker **35**, which can output sound, is disposed on the upper right of the image display device **31** on each of the stations **3**.

A plurality of buttons is provided on the side part of the image display device **31** on each of the stations **3**.

More specifically, a payout button **36** and a help button **37** are disposed there.

The payout button **36** is a button which is usually pressed at the end of a game, and when the payout button **36** is pressed, game media corresponding to credits that the player has acquired is paid out from the payout opening **322**.

The help button **37** is a button that is pressed in a case where a method of operating the game is unclear, and upon the help button **37** being pressed, a help screen showing various kinds of operation information is displayed immediately thereafter on the image display device **31**.

Another operation is performed by the player touching a display screen displayed on the image display device **31**.

Since a touch-sensitive sensor is installed on the surface of the image display device **31**, various operations are recognized by the player touching through a so-called touch panel system.

The dice movable unit **4** rolls a plurality of the dice **40** used in a Sic Bo game.

An award is determined based on a combination of numbers appearing on an upper face (hereinafter, defined as a number of dots) when a plurality of the dice **40** is caused to roll and stop.

In other words, a random number can be obtained by rolling a plurality of the dice **40**.

The history display unit **91** is a display on which the history of a game including the number of dots of the dice is displayed.

Details thereof are described later.

The external large-size monitor **500** is a display on which live images such as for advancement of a game, a demonstration screen, and the like are displayed.

<Dice Movable Unit>

The dice movable unit **4** will be explained with reference to FIGS. **3**G and **7**G.

FIG. **3**G is a perspective diagram showing the dice movable unit **4**.

FIG. **4**G is a diagram illustrating a cross-section along the line A-A of the dice movable unit **4**.

FIG. **5**G is a perspective view showing a schematic representation of an antenna **63** of a playing board **41**a.

FIG. **6**G is a configurational diagram of a detection device **61**.

FIG. **7**G is a block diagram showing an internal configuration of the reader **62**.

The dice movable unit **4** is configured so as to allow a plurality of the dice **40** to roll and stop.

This dice movable unit **4** includes a shaking device **41** that is configured so as to cause the dice **40** to roll, a cover member **42** that covers an upper side of the shaking device **41** and is formed in a dome shape, and a unit main body **43** that houses the shaking device **41**.

In the present embodiment, the shaking device **41** causes the three dice **40** (the die **40**a, the die **40**b, and the die **40**c) to roll.

The cover member **42** is disposed so as to cover the entire top face of the playing board **41**a.

Furthermore, the cover member **42** is made of a transparent member in a substantially hemispherical shape and limits the area in which the dice **40** roll.

A plurality of the dice **40** is disposed in the space formed by the playing board **41**a and the cover member **42**.

In the present embodiment, the dice **40** are substantially hexahedral and the wireless IC tags are embedded in each face thereof.

It should be noted that this wireless IC tag **401** is embedded in a surface of a die **40** so as not to be visually recognized from the outside of the die **40**.

For example, the die **40** can be formed by disposing the wireless IC tag **401** at the surface of a member as a base of the die **40**, and then placing a member as a cover thereover. Details thereof are described later.

The dice movable unit **4** includes lamps **44**.

The lamps **44** perform various rendered effects by emitting light while the dice **40** are rolling.

The shaking device **41** is formed in a substantially circular shape as viewed in a plane, supports a plurality of the dice **40**, and includes the playing board **41**a as a field on which a plurality of the dice **40** are rolled and a cylinder portion **45** that oscillates the playing board **41** vertically.

Since the playing board **41**a is formed to be substantially planar, as shown in FIG. **4**G, the dice **40** are rolled by oscillating (shaking) the playing board **41**a substantially in the vertical direction with respect to the horizontal direction of the playing board **41**a by way of the cylinder portion **45** that supports the playing board **41**a from a lower face side of the playing board **41**a.

Then, when the oscillation of the playing board **41**a comes to rest, the dice **40** rolling come to rest.

Furthermore, the playing board **41**a includes a playing board main body **411**, a cushion member **412** that is disposed on the top face of the playing board main body **411**, an antenna base portion **413** that is disposed between the playing board main body **411** and the cushion member **412** and in which the antennas **63**a, **63**b, and **63**c are disposed.

It is preferable for the members forming these to be made of a non-metallic member.

Since radio waves are susceptible to the interference of metal, if metal exists near the wireless IC tag **401**, the communication range between the reader **62** and the wireless IC tag **401** will be reduced, and thus it may prevent the wireless IC tag **401** from being read by the reader **62**.

Then, the antennas **63**a, **63**b, and **63**c that are disposed at the antenna base portion **413** are connected to first communication portions **65**a, **65**b, and **65**c through wires, respectively.

The first communication portions **65**a, **65**b, and **65**c are each disposed on a lower face side of the playing board main body **411**.

In addition, second communication portions **66** are disposed so as to oppose the first communication portions **65**a, **65**b, and **65**c.

The second communication portions **66**a, **66**b, and **66**c are disposed on a unit main body **43** side of the dice movable unit **4**.

In other words, the first communication portion **65** and the second communication portion **66** are disposed so as to being respectively facing at the lower face side of the playing board **41**a.

This enables a stable communication state to be maintained without the relative position between the first communication portion **65** and the second communication portion **66** being shifted when the playing board **41**a moves along with the vertical motion of the cylinder portion **45**.

Assuming a case of the first communication portion **65** and the second communication portion **66** being disposed on a side face of the playing board **41**, after the playing board **41**a has moved, the first communication portion **65** and the second communication portion **66** may not be at opposing positions, and it may not be possible to communicate therebetween.

It is possible to prevent such a state from arising by disposing the first communication portion **65** and the second communication portion **66** so as to be facing on a lower face side of the playing board **41**a.

The detection device **61** will be explained while referring to FIGS. **5**G and **6**G.

The detection device **61** according to the present invention is provided at the dice movable unit **4** that rolls a plurality of the dice **40** in a dice game of so-called Sic Bo, and is used for detecting the numbers of dots on the plurality of the dice **40**.

This detection device **61** is mainly configured with the reader **62** that reads information stored in the wireless IC tags **401** which are disposed on each of the faces of the dice **40**.

The reader **62** includes a control circuit that can be connected to a higher-level device such as a PC, a plurality of loop-shaped antennas **63** that are disposed on the playing board **41**a serving as a field on which the plurality of dice **40** rolls, the first communication portion **65** that is connected to

the antenna **63**, and the second communication portion **66** that communicates with the first communication portion **65**.

Furthermore, a switch portion **67** that switches whether electrical current is supplied to the antenna **63** is provided between the antenna **63** and the first communication portion **65**.

In addition, the reader **62** is connected to the controller **2**.

The reader **62** reads information stored in the wireless IC tag **401**, and decodes and transmits the information thus read to the controller **2**.

In the present embodiment, communication between the reader **62** and the wireless IC tag **401** is performed by way of electromagnetic induction.

That is, the reader **62** flows current to the antenna **63** based on an instruction signal from the controller **2** and transmits a predetermined command to the wireless IC tag **401**.

When this is done, a magnetic field is altered within the area surrounded by the loop-shaped antenna **63** in which the current flows.

Accompanying the alteration of magnetic flux in this magnetic field, an electromotive force is generated within the loop antenna that is included in the wireless IC tag **401**, which is disposed within the area.

Herewith, electric power is transmitted to the wireless IC tag **401**, whereby communication with the wireless IC tag **401** is performed.

In the present embodiment, three antennas **63** of the reader **62** are provided and disposed so that at least a portion of each of the detection areas thereof is mutually superimposed (see FIG. **5**G).

In addition, among the three antennas **63**, the antenna **63**a as a first antenna portion is disposed substantially at the center of the playing board **41**a and is formed so as to depict a substantially circular shape.

Furthermore, the antennas **63**b and **63**c serving as second antenna portions are formed so that four areas of substantially triangular shape depict a cross shape around an apex thereof, and bottom portions of substantially triangular shape are formed with a curve so as to follow the circumference of the playing board **41**a.

Therefore, the antennas **63**b and **63**c are formed so that the width of the edges thereof is larger at the outer side than the center portion of the playing board **41**a.

Then, the antennas **63**b and **63**c are disposed so that the areas of substantially triangular shape thereof are disposed alternately and portions of the areas of substantially triangular shape are disposed to be mutually superimposed.

More specifically, a lateral portion of the area of substantially triangular shape of an antenna is disposed so as to be superimposed with a portion of the area of substantially triangular shape of another antenna.

In this way, the antennas **63**b and **63**c are loop antennas formed in a loop-shape so as to be the abovementioned shape.

In the present embodiment, each of the wireless IC tags **401** disposed in the plurality of the dice **40** is read by a single reader **62**.

Under the abovementioned RFID system, an anti-collision function can be employed which can read a plurality of wireless IC tags with a single reader.

For the anti-collision function, there are FIFO (first in first out) type, multi-access type, and selective type, which communicate with a plurality of the wireless IC tags sequentially.

FIFO type is a mode to communicate with a plurality of the wireless IC tags sequentially in the order in which each wireless IC tag enters an area in which an antenna can communicate therewith. Multi-access type is a mode that is able to communicate with all of the wireless IC tags, even if there is a plurality of the wireless IC tags simultaneously in the area in which the antenna can communicate with the wireless IC tags. Selective type is a mode that is able to communicate with a specific wireless IC tag among a plurality of the wireless IC tags in the area in which the antenna can communicate therewith.

By employing the above-mentioned modes, it is possible to read a plurality of the wireless IC tags with a single reader.

The wireless IC tag **401** is configured so as to be read by the reader **62** by way of radio waves or electromagnetic induction.

The wireless IC tag **401** is configured with a loop antenna and an IC chip having a control circuit, memory, a rectifying circuit, and a transmission/reception circuit, and number of dots information of the die **40** is stored in the memory.

Details thereof are described later.

The first communication portion **65** and the second communication portion **66** can mutually transmit and receive wirelessly.

The first communication portion **65** and the second communication portion **66** are provided between the antenna **63** and the reader **62**.

The first communication portion **65** is connected to the antenna **63**, and the second communication portion **66** is connected to the reader **62**.

Accordingly, various commands transmitted from the reader **62** to the wireless IC tag **401**, and reply information from the wireless IC tag **401** received by the antenna **63** are mutually transmitted and received between the first communication portion **65** and the second communication portion **66**.

The reply information from the wireless IC tag **401** is information different from the number of dots information that is stored in the memory of the wireless tag **401**, for example.

The first communication portion **65** also has a transmission circuit for transmitting electric power to the antenna **63**.

In addition, a switch portion **67** is provided between the first communication portion **65** and the antenna **63**. This switch portion **67** switches whether electrical current is supplied to the antenna **63**.

When the switch portion **67** enters an ON state, electric power is transmitted from the transmission circuit of the first communication portion **65** to the antenna **63**.

In addition, in a case of the switch portion **67** being in an OFF state, the electric power transmitted from the transmission circuit of the first communication portion **65** is turned OFF.

The switch portion **67** is configured by a photo MOSFET (Metal Oxide Semiconductor Field Effect Transistor) in the present embodiment.

In a photo MOSFET, a photovoltaic cell charges the gate capacitance of the FET from the light of a light emitting diode to raise the gate-to-source voltage, and the FET conducts, whereby the switch portion **67** enters the ON state.

When the light emitting diode (LED) goes out, the photovoltaic cell does not simply stop charging, but rather a discharge switch inside thereof automatically activates to forcibly discharge the gate charge, and the gate-to-source voltage immediately declines, whereby the switch portion **67** enters the OFF state.

If electric power were transferred to the three antennas **63**a, **63**b, and **63**c simultaneously at this time, these antennas

may interfere with each other since the detection areas thereof are mutually superimposed.

For this reason, the antenna **63** detecting the wireless IC tag **401** is switched by transferring the electric power to each of the three antennas **63**a, **63**b, and **63**c in a predetermined order based on the instruction signal from the controller **2**.

In addition, the ON/OFF state of each switch portion **67** of the antennas **63**a, **63**b, and **63**c is switched by the reader **62** accompanying the switching of the three antennas **63**a, **63**b, and **63**c.

In other words, in a case of an instruction signal to supply electric power to the antenna **63**a is transmitted from the controller **2** to the reader **62**, for example, the reader **62** first sets the switch portion **67**a to ON through the first communication portion **65**a and the second communication portion **66**a.

Then, electric power is supplied to the antenna **63**a.

Furthermore, in a case of supplying electrical current to the antenna **63**b, the controller **2** transmits an instruction signal to set the antenna **63**a to OFF and to set the antenna **63**b to ON.

The reader **62** thereby wirelessly communicates this signal by way of the first communication portion **65**a and second communication portion **66**a, and sets the switch portion **67**a to OFF.

In addition, the reader **62** wirelessly communicates this signal by way of the first communication portion **65**b and second communication portion **66**b to set the switch portion **67**b to ON.

Then, the antenna **63**a is turned OFF, and electric power is supplied to the antenna **63**b.

The configuration of the reader **62** will be explained while referring to FIG. **7**G.

FIG. **7**G is a functional block diagram of the reader **62**.

The reader **62** is configured by a control circuit **621**, oscillation circuit **622**, modulation circuit **623**, transmitting circuit **624**, receiving circuit **625**, and demodulating circuit **626**.

The control circuit **621** performs overall control of the reader **62**, such as communication control with the controller **2** and intercommunication control with the wireless IC tags **401**.

More specifically, it outputs encoded commands to be transmitted to the wireless IC tags **401**, data for writing to the memory, and the like to the modulation circuit at the required timing.

In addition, it encodes and transmits replies from the wireless IC tags **401** input from the modulation circuit, memory data, and the like, to the controller **2**.

A memory circuit that stores a control program, data for applications, and the like is also included in this control circuit **621**.

The oscillation circuit **622** is a circuit that produces the carrier wave required in the intercommunication with the wireless IC tags **401**.

For example, this circuit causes oscillation at a precise frequency using a crystal oscillator or the like.

This circuit causes oscillation at a high frequency, and produces a synchronized signal with the carrier wave used by frequency dividing the high frequency.

The operating timing of the various circuits is made to be synchronous with this synchronized signal.

The modulation circuit **623** is a circuit for modulating and transmitting commands, data and the like being transmitted from the control circuit **621** to be overlapped on the carrier wave generated by the oscillation circuit **622**, to the transmitting circuit **624**.

For example, amplitude shift keying, frequency shift keying, phase shift keying or the like can be employed as the modulation method.

The transmitting circuit **624** is a circuit for transmitting commands and data overlapped with the carrier wave being transmitted from the modulation circuit **623** to the antenna.

The transmitting circuit **624** is further configured by an amplifier circuit for amplifying signals and a filter circuit that causes unwanted frequencies to decay and allows only the frequency to be transmitted to pass therethrough.

The receiving circuit **625** is a circuit that receives the weak carrier wave from the wireless IC tag **401** entering via the antenna **63**, and cuts out the received carrier wave and unwanted noise.

The receiving circuit **625** is also configured by a filter circuit that allows only required signals to pass therethrough, and an amplifier circuit that amplifies only the input signals.

Therefore, in the present embodiment, communication is performed between the antenna **63** and the reader **62** via the first communication portion **65** and the second communication portion **66**, which carry out wireless communication.

Consequently, it is configured to transmit and receive the signals from these communication portions in the communication performed by the transmitting circuit **624** and the receiving circuit **625**.

In a case of there not being a first communication portion **65** and second communication portion **66**, transmission or reception would be performed directly through the antenna **63**.

The demodulating circuit **626** demodulates and transmits commands and data from the wireless IC tags **401** input from the receiving circuit **625**, to the control circuit **621**.

The demodulating circuit **626** demodulates commands and data according to the modulation method adopted by the modulation circuit **623**.

In this way, the control circuit **621** of the reader **62** modulates commands and the like with the modulation circuit **623** and transmits from the transmitting circuit **624** through the antenna **63**, based on the instruction signals from the controller **2**.

In addition, while receiving, the carrier wave from the wireless IC tag **401** is received by the antenna **63**, encoded data is demodulated with the demodulating circuit **626** to make a format processable by the controller **2**, and the data is transmitted to the controller **2**.

<Die>

The die **40** will be explained with reference to FIG. **8**G.

FIG. **8**G is an exploded perspective view of the die **40**.

The die **40** is composed of a core portion **402**, an intermediate portion **403**, and a covering portion **404**, and the wireless IC tags **401** are disposed between the core portion **402** and the intermediate portion **403**.

These wireless IC tags **401** are disposed in each face of the die **40**, which have 6 faces.

The core portion **402** is a substantially cubic member which is formed by cutting off the corners of a cube.

At the substantially central portions of each of the faces of the core portion **402**, concave portions are formed in order to embed the wireless IC tags **401**, and the wireless IC tags **401**a, **401**b, **401**c, **401**d, **401**e, and **401**f are disposed in each of the six concave portions.

The intermediate portion **403** is configured by combining a first intermediate portion **403**a with a second intermediate portion **403**b, which is larger than the core portion **402** and formed by dividing a substantially cubic body in half.

The first intermediate portion **403**a and the second intermediate portion **403**b have concave portions formed on the insides thereof that each fit half of the core portion **402**.

Then, for example, by covering the core portion **402** on which the wireless IC tags **401** are embedded, by the first intermediate portion **403**a from above and the second intermediate portion **403**b from below, the core portion **402** is covered by the intermediate portion **403**.

The covering portion **404** is configured by combining a first external portion **404**a and a second external portion **404**b, which is slightly larger than the intermediate portion **403** and formed by dividing a substantially cubic body in half.

The first covering portion **404**a and the second covering portion **404**b have concave portions formed on the insides thereof that each fit half of the intermediate portion **403**.

For example, by covering the intermediate portion **403** by the first covering portion **404**a from the left and the second covering portion **404**b from the right, the intermediate portion **403** is covered by the covering portion **404**.

It should be noted that it is possible to apply a film-type tag as the wireless IC tag **401**.

In this case, it is not necessary to form concave portions in the core portion **402**, and it is possible to mount by attaching directly on the core portion **402**.

On the other hand, in order to reduce the flexure of the wireless IC tags in the dice **40**, it is particularly preferable that a hard plastic member such as ABS resin is applied as the covering portion **404**.

The wireless IC tag **401** can appropriately employ an active tag which embeds a battery, a passive tag operated using electric power transferred from a reader/writer, and a semi-passive tag using electric power of a battery for a sensor operation.

Furthermore, appropriate combinations for the wireless IC tag **401** as a reader can be employed.

In the present embodiment, a passive tag is employed.

In addition, reading the wireless IC tags **401** may not only be done by non-contact type, but also contact type.

In addition, the reader is not limited thereto, and anything that is appropriately designed with the object of being read may be employed.

The configuration of the wireless IC tag **401** will be explained with reference to FIG. **9**G.

FIG. **9**G is a functional block diagram of the wireless IC tag **401**.

The wireless IC tag **401** is configured by an antenna **421**, voltage limiting circuit **422**, rectifying circuit **423**, demodulating circuit **424**, modulation circuit **425**, control circuit **426**, and memory circuit **427**.

The antenna **421** is a portion that transmits and receives electric power, commands, and data transmitted from the reader **62**.

The antenna for the wireless IC tag **401** used must be tuned to the frequency of the carrier wave.

In addition, the format of the antenna is also different according to the form of the wireless IC tag **401** adopted, such as radio waves and electromagnetic induction.

For example, in a case of being electromagnetic induction type, a loop antenna that easily obtains the energy of a magnetic field is used.

In addition, in the case of being radio wave type, a dipole antenna, flat antenna, or the like that easily obtain the energy of an electric field is used.

The voltage limiting circuit **422** is a circuit for protecting the internal circuitry of the wireless IC tag **401** from excessive input.

This is because the input to the antenna **421** changes from a small input near the limit at which the IC chip operates to an excessive input.

More specifically, the voltage limiting circuit **422** prevents damage to the internal circuitry by converting the surplus amount of the excessive input into heat, and dissipating to outside.

The rectifying circuit **423** converts alternating current to direct current, and supplies an electrical source to all of the circuits of the wireless IC tag **401**.

This is because, although at the time of antenna input of the wireless IC tag **401**, it is alternating current, the IC chip operates with direct current.

The demodulating circuit **424** is a circuit that restores commands and data overlapping the carrier wave input from the reader **62** to a signal sequence of "1" or "0".

The signal sequence thus demodulated is transmitted to the control circuit **426**, and operations of the wireless IC tag **401** are executed according to the commands from the reader **62**.

The modulation circuit **425** is a circuit that modulates the carrier wave with data to transmit to the reader **62**.

The carrier wave modulated with a reply to a command accepted from the control circuit **426** and data in the memory is transmitted from the antenna **63** to the reader **62**.

The control circuit **426** controls transmission and reception with the reader **62** and all of the operations in the wireless IC tag **401** such as batch reading and read/write to the internal memory.

In the wireless IC tag **401**, the modulation circuit **425** encodes information stored in the memory circuit **427** (source coding), and further encodes it for complying with a transmission channel (transmission coding).

Upon transmitting the information to the reader **62**, it is transmitted by modulating into an analog waveform.

Then, the reader **62** demodulates the data thus modulated and returns it to digital waveform, and further decodes it to the original state and transmits the information to the controller **2**. The memory circuit **427** is a circuit in which the unique ID of the wireless IC tag **401** (described later), number of dots information, and other information are stored.

For example, EPROM (Electrically Programmable Read Only Memory) which is of read only type, write once read many (WORM) type EEPROM (Electrically Erasable and Programmable Read Only Memory), rewritable EEPROM, FeRAM (Ferroelectric Random Access Memory), SRAM (Static Random Access Memory), and the like can be suitably applied as the memory circuit **427**.

Data such as that shown in FIG. **10**G is stored in the memory space of the memory circuit **427** of the wireless IC tag **401** embedded in each face of the die **40**.

In other words, the data is the unique ID, the number of dots information of a die including color information of the die **40**, the CRC value as error detection information, and the die serial information indicating the serial number of the die.

FIG. **10**G is a table showing a summary of information stored in the memory circuit **427** of the wireless IC tag **401**.

The wireless IC tags **401** are embedded in each face of the die **40**, as described above.

Furthermore, in the present embodiment, there are three dice **40** rolled on the playing board **41**a, each given a different color.

The table shown in FIG. **10**G shows the information of the wireless IC tag **401** embedded in each face of the die **40** that is red.

Although only one table is shown in FIG. **10**G, a similar table is stored in the memory circuit **427** in the other dice.

The column of "die face" indicates the number of dots depicted on the die face in which the wireless IC tag **401** is embedded.

In a case of the number of dots being "1", when the face on which "1" is depicted comes to be the top face, it is recognized that the number of dots is "1".

In the present embodiment, the dice **40** are six-sided bodies; therefore, from one to six dots are depicted on the respective faces, and dot number value indicates the number of dots.

In the column of "unique ID", the unique ID number assigned to the wireless IC tag **401** is stored.

This unique ID number is assigned by the maker that manufactured the wireless IC tag **401** or the tag chip, and is written so as to be unmodifiable.

The columns of "00" to "06" indicate the addresses of the memory space.

In the present embodiment, the number of dots information and CRC value of the die are stored in any region from address "00" to "05".

In addition, die serial information is stored in the region of the address "06".

In the table shown in FIG. **10**G, the die serial information of "xxxxxxxx" is stored therein.

Which address the number of dots information and CRC value are stored depends on the value of the unique ID field.

In other words, when the value of the unique ID field stored in the wireless IC tag **401** is read by the reader **62**, the controller **2** having received this information from the reader **62** uses a predetermined function stored in the ROM **82** serving as a storage unit of the control **2** to calculate the value indicating the address at which the number of dots information of the die **40** is stored.

Thereafter, based on the value thus calculated, the reader **62** reads the number of dots information of the address indicated by this value.

It should be noted that the value calculated by the controller **2** is the value indicating the address at which the number of dots information is stored.

In the present embodiment, the CRC value is stored in the next address to the address at which the number of dots information is stored.

Consequently, the address of the CRC value (second address information) stored in the adjacent address thereto is also identified simultaneously with the address of the number of dots information being calculated based on the unique ID.

In other words, by acquiring the unique ID, the controller **2** can also obtain information of the address at which the CRC value is stored based on the unique ID.

Based on the address calculated from this unique ID, the reader **62** reads the number of dots information of the address indicated by the value thus calculated, and further reads the value (CRC value) stored in the next address added thereto.

It should be noted that the CRC value is stored in the address "01" in the case of the number of dots information being stored in the address "05".

In the present embodiment, number of dots information of the die at least includes the color of the die and the number of dots on a face opposing a face of the die in which the wireless IC tag **401** is embedded.

That is, a value of "six" is stored in the wireless IC tag **401** on the face on which the number of dots is "one". A value of "five" is stored in the wireless IC tag **401** on the face on which the number of dots is "two". A value of "four" is stored in the wireless IC tag **401** on the face on which the number of dots is "three". A value of "three" is stored in the wireless IC tag **401** on the face on which the number of dots is "four". A value of "two" is stored in the wireless IC tag **401** on the face on which the number of dots is "five". Finally, a value of "one" is stored together with color information of die in the wireless IC tag **401** on the face on which the number of dots is "six".

For example, in a case in which a face of the die **40** that is in contact with the playing board **41**a is the face on which number of dots is "six", the reader **62** reads the data of the IC tag **401** which is embedded in the face of "six".

Number of dots information stored in the wireless IC tag **401** on the face "six" is "one", which is the number of dots on the face opposing the face of "six"; therefore, the number of dots on the die **40** is recognized as "one".

In addition, the CRC value is a value calculated using a CRC value acquisition program with the unique ID, a numerical value indicating the number of dots of the die **40**, and die serial information as seed values.

CRC value is a value calculated by the CRC method for verifying the authenticity of data. This CRC method generates a CRC value using a cyclic algorithm (generator polynomial).

This method has a characteristic of the detection accuracy of multiple-bit soft errors being high.

In the present embodiment, it is used to determine whether the number of dots information of the die **40** read by the reader **62** is correct.

In the present embodiment, CRC **32** method that calculates a 32-bit CRC value is used.

The CRC value acquisition program that calculates the CRC value is stored in the ROM **82** of the controller **2**.

Then, the CPU **81** of the controller **2** calculates the CRC value using the CRC value acquisition program from the unique ID, number of dots information, and die serial information read from the wireless IC tag **401** by the reader **62** and transmitted to the controller **2**.

In addition, the CPU **81** compares the CRC value read from the same wireless IC tag **401** and the CRC value newly calculated.

The CPU **81** recognizes the number of dots information thus read as being the correct value as a result of comparison, in the case of the two CRC values being the same value.

Controller

FIG. **11**G is a block diagram showing an internal configuration of the controller **2**.

The controller **2** performs control of the entire game and transmits to the reader **62** of the dice movable unit **4** an instruction signal to supply electric power to the antennas **63**a, **63**b, and **63**c.

The controller **2** of the gaming machine **1** includes a microcomputer **85**, which is mainly configured with a CPU **81**, ROM **82**, RAM **83**, and a bus **84** that transfers data therebetween.

The CPU **81** is connected with the shaking device **41** via an I/O interface **90**.

Furthermore, the CPU **81** is connected via the I/O interface **90** with a timer **131**, which can measure time.

In addition, the CPU **81** is connected with a lamp **44**.

The lamp **44** emits various colors of light for performing various types of rendered effects, based on output signals from the CPU **81**.

Furthermore, the CPU **81** is connected with a speaker **46** via a sound output circuit **461**.

The speaker **46** emits various sound effects for performing various types of rendered effects, based on output signals from the sound output circuit **461**.

Furthermore, the reader **62** is connected to the I/O interface **90**, whereby transmission and reception of number of dots information of the three dice **40** having come to rest on the playing board **41**a is performed between the reader **62**.

In addition, a communication interface **94** is connected to the I/O interface **90**, and via this communication interface **95**, the controller **2** transmits and receives data such as bet information, payout information, and the like to and from each station **3**, as well as data such as bet start instruction images, bet start instruction signals, and the like to and from the dealer used display **210**.

The ROM **82** in the controller **2** is configured to store a program for implementing basic functions of the gaming machine **1**, i.e. a program for controlling various devices which drive the dice movable unit **4**, a program for controlling each station **3**, and the like, as well as a payout table, data indicating a predetermined time T, data indicating a specific value TT, and the like.

The RAM **83** is memory that temporarily stores various types of data calculated by the CPU **81** and, for example, temporarily stores data bet information transmitted from each station **3**, number of dots information of the dice **40** transmitted from the reader **62**, data relating to the results of processing executed by CPU **81**, and the like.

A jackpot storage area is provided in the RAM **83**.

In the jackpot storage area, the data indicating the number of playing media stored cumulatively is stored so as to correspond to each number of dots of matching dice.

The data is provided to the station **3** at a predetermined timing, and a jackpot image is displayed based on this data.

The CPU **81** controls the shaking device **41** of the dice movable unit **4** based on data or a program stored in the ROM **82** or the RAM **83**, and to cause the playing board **41**a (a shaking motion) of the dice movable unit **4** to oscillate.

Furthermore, after the shaking motion of the playing board **41**a ceases, control processing associated with game progression, such as confirmation processing for confirming the number of dots on each of the dice **40** resting on the playing board **41**a, is executed.

In addition, the history display unit **91** is connected to the I/O interface **90**, and the controller **2** transmits and receives number of dots information as game history, to and from the history display unit **90**.

Furthermore, an external large-size monitor **500** is connected to the I/O interface **90** through a controller **400**, and the controller **2** transmits and receives image data and the like to and from the external large-size monitor **500**.

On the external large-monitor **500**, game advancement, a game result, a live image of dice rolling, a demonstration screen, and the like are displayed.

This attracts the interest of people around the external large-size monitor **500**.

In addition to the control processing described above, the CPU **81** has a function of executing a game by transmitting and receiving data to and from each station **3** so as to control each station **3**.

More specifically, the CPU **81** accepts bet information transmitted from each station **3**.

Furthermore, the CPU **81** performs win determination processing based on the number of dots on the dice **40** and the bet information transmitted from each station **3**, and calculates the amount of an award paid out in each station **3** with reference to the payout table stored in the ROM **82**.

Reading Flow of wireless IC Tag

The flow of reading the wireless IC tags **401** will be explained based on FIG. **12**G.

FIG. **12**G is a flowchart showing the processing of performing reading of the wireless IC tags **401**.

In Step S**1**, the CPU **81** of the controller **2** performs dice rolling completion processing.

Dice rolling completion processing is processing after the playing board **41**a is caused to move greatly vertically by way of the cylinder portion **45**, thereby causing the three dice **40**a, **40**b, and **40**c to roll.

More specifically, the CPU **81** causes the playing board **41**a to slightly oscillate vertically, by causing the cylinder portion **45** to slightly move vertically.

It is thereby possible, in a case in which the three dice **40**a, **40**b, and **40**c come to rest in a state leaning against the cover member **42** and are overlapping, to eliminate such a state.

Then, the CPU **81** returns to the initial position prior to rolling the playing board **41**a, and causes movement of the cylinder portion **45** to stop.

In Step S**2**, the CPU **81** of the controller **2** transmits an instruction signal to read the wireless IC tags **401** to the reader **62**.

Then, the control circuit **621** of the read **62** having received the instruction signal from the controller **2** supplies electric power to each of the three antennas **63**a, **63**b, and **63**c in a predetermined order, and initiates the switching of the ON state and OFF state thereof and reading (Step S**3**).

In Step S**4**, the control circuit **621** of the reader **62** reads, by way of the antenna **63** to which electric power is supplied, the wireless IC tag **401** on the face on the playing board **41**a side (bottom face) among the six faces of the die **40** having come to rest, and transmits the information thereof to the controller **2**.

It should be noted that the information reading at this time is die serial information indicating the unique ID and serial number of the die **40**.

Then, the CPU **81** of the controller **2** stores this information in a predetermined storage region of the RAM **83**.

In Step S**5**, the CPU **81** of the controller **2** performs a predetermined function calculation using the unique ID and acquires information showing the address at which the number of dots information is stored.

Furthermore, the CPU **81** transmits an instruction signal to read based on the information showing the address to the reader **62** (Step S**6**).

More specifically, the address is specified, and the instruction signal to read is transmitted to the reader **62**.

In Step S**7**, the control circuit **621** of the reader **62** acquires number of dots information and the CRC value from the wireless IC tag **401**.

More specifically, the control circuit **621** transmits to the wireless IC tag **401** a command to transmit the information stored at the address of the wireless IC tag **401** specified by the controller **2**

Then, the control circuit **426** of the wireless IC tag **401** having received this transmits the information stored at the specified address of the memory circuit **427** (number of dots information) to the reader **62**.

In addition, the control circuit **426** of the wireless IC tag **401** similarly transmits the CRC value stored at a subsequent number to the address number at which the number of dots information is stored to the reader **62** (Step S**8**).

In Step S**9**, the control circuit **621** of the reader **62** determines whether all of the wireless IC tags **401** on the lower face side of the three dice **40**a, **40**b, and **40**c have been detected.

In a case of the information of the wireless IC tags **401** of all three of the dice **40**a, **40**b, and **40**c have been read (in a case of this determination being YES), the control circuit **621** ends the processing of the present flowchart.

In addition, in a case of the information of the wireless IC tags **401** of all three of the dice **40**a, **40**b, and **40**c not having been read (in a case of this determination being NO), Step S**3** is advanced to.

In Step S**10**, the CPU **81** of the controller **2** calculates the CRC value with the unique ID, numerical value indicating the number of dots of the die **40**, and the die serial formation as seed values.

More specifically, the CPU **81** reads a CRC value acquisition program from the ROM **82**, and calculates the CRC value using the unique ID and die serial information stored in the RAM **83** acquired from the wireless IC tag **401** in Step S**4**, and the number of dots information (numerical value indicating the number of dots) of the die acquired in Step S**7** and Step S**8**.

In Step S**11**, the CPU **81** of the controller **2** compares the CRC value stored in the wireless IC tag **401** acquired in Step S**7** and Step S**8**, with the CRC value calculated in Step S**10**.

In Step S**12**, following the processing of Step S**11**, the CPU **81** of the controller **2** determines whether the CRC values are the same value.

In a case of being the same value (in a case of this determination being YES), Step S**13** is advanced to.

In addition, in a case of the two CRC values being different values (in a case of this determination being NO), Step S**14** is advanced to.

In Step S**13**, the CPU **81** of the controller **2** performs number of dots information processing.

More specifically, payout is performed in a case of winning, based on the combination of the number of dots of each of the three dice **40**a, **40**b, and **40**c and the playing media bet. When this processing is completed, the present flowchart is completed.

In Step S**14**, the CPU **81** of the controller **2** performs read error processing.

For example, display of the fact that an error has occurred is performed on the dealer used display **210**. In addition, the game prepares to be inactive, and performs processing such as of paying out the playing medium bet. When this processing is completed, the present flowchart is completed.

According to the present embodiment, the addresses in the memory circuit **427** differ at which information of the number of dots is stored in the wireless IC tags **401** embedded in each face of the dice **40**.

In addition, in order to read the number of dots information, the value indicating the address is calculated using the unique ID of the wireless IC tag **401**.

The unique ID is a unique value, and since the address at which the number of dots information is stored is calculated based on this, accidental reading of the number of dots information of another wireless IC tag **401** is eliminated.

The value indicating the address is calculated using one unique ID, and even if the data of other wireless IC tags **401** is called, since the number of dots information is not stored at this position, the erroneous number of dots information is not read.

Even in a case of performing batch reading, the number of dots information can be accurately acquired.

Therefore, in a case of a fraudulent act having been performed such as causing erroneous data to be read, since the fraudulent act would be revealed immediately, it becomes a deterrent to performing fraudulent acts, and thus can prevent fraudulent acts.

According to the present embodiment, the CRC value together with the number of dots information is stored in the memory circuit **427** of the wireless IC tag **401**.

Then, the controller **2** calculates the CRC value, and compares.

Since the CRC value basically indicates an arbitrary value, in a case of the controller **2** calculating the CRC value based on the read data and being a different value, the data read is found not to be correct.

It can thereby be distinguished that the number of dots information is always the correct value.

According to the present embodiment, the CRC value is a value calculated with the number of dots information, unique ID and die serial information as seed values.

Since the die serial information is a characteristic value of the maker that manufactured the die, it is more difficult to predict than simply setting the number of dots information and unique ID as seed values; therefore, it is possible to prevent fake dice or wireless IC tags and fraudulent acts such as fabricating data and the like.

While an embodiment of the gaming machine according to the present invention has been described, it is to be understood that the above description is intended to be illustrative, and not restrictive, and any changes in the design may be made to specific configurations such as the various means.

Moreover, it should be understood that the advantages described in association with the embodiments are merely a listing of most preferred advantages, and that the advantages of the present invention are by no means restricted to those described in connection with the embodiments.

Although the value indicating the address is calculated by the controller **2** in the present embodiment, it is not limited thereto.

For example, a predetermined program may be stored in the reader **62**, and the reader **62** may calculate the value indicating the address according to the program.

Although error detection is performed using the CRC method in the present embodiment, it is not limited thereto. It may be configured so as to perform error detection using another error detection method.

In addition, although it is configured to calculate a CRC32 value in the present embodiment, it is not limited thereto.

It may be configured to a method that calculates a value of another length.

Although it is configured to use an RFID system according to electromagnetic induction in order to detect the number of dots of the dice **40** in the present embodiment, it is not limited thereto.

For example, it can be configured to be radio waves, and use a method of reading data after executing a predetermined program in the wireless IC tag **401** or the like.

Although the present embodiment is configured such that, in the memory region of the memory circuit **427** of the wireless IC tags **401**, the number of dots information is respectively stored at predetermined addresses, and the CRC values are stored at subsequent addresses to the predetermined addresses, it is not limited thereto.

For example, it may be configured so as to be an address before the predetermined address, and stored at an address separated by a number of addresses.

It should be noted that, in such a case, the CPU **81** of the controller **2** not only calculates the address at which the number of dots informed is stored using the unique ID, but preferably also calculates the address at which the CRC value is stored.

Then, the function calculating the address using the unique ID is not limited to being singular, and may be a plurality such as a function for calculating the address at which the number of dots information is stored and a function for calculating the address at which the CRC value is stored.

Although it is configured so that the reader **62** is only involved in transmission and reception with the wireless IC tags **401** in the present embodiment, it is not limited thereto.

More specifically, it may have a writer function that can change various data stored in the wireless IC tag **401**.

With this function, it is possible to change the various data stored in the suitable wireless IC tag **401**. In this case, the data for changing is preferably stored in the ROM **82** of the controller **2**.

In addition, various data stored in the wireless IC tag **401** can be changed at periods of a predetermined interval. Since the data can be changed in a timely manner, it is possible to prevent a fraudulent act even if the game system **1** is mad to operate for an extended time period.

The invention claimed is:

1. A gaming system comprising:

a dice movable unit having a plurality of dice and a shaking device that causes the plurality of dice to roll;

a plurality of game terminals, each of the plurality of game terminals having an operation device that a player can operate; and

a controller that executes processing of:

(a) receiving bet end signals from betted terminals among the plurality of game terminals, each of the bet end signals indicating betting in a corresponding betted terminal has ended;

(b) transmitting a first shaking motion start signal, which causes a first shaking motion by the shaking device to start, to the dice movable unit;

(c) transmitting a permission signal, which permits an operation by the operation device of a predetermined game terminal of the betted terminals, to the predetermined game terminal;

(d) receiving an operation signal, which indicates that the operation device has been operated, from the predetermined game terminal; and

(e) transmitting a second shaking motion start signal, which causes a second shaking motion by the shaking device to start, to the dice movable unit in response to the operation signal;

wherein the dice movable unit

(b1) starts the first shaking motion in response having received the first shaking motion start signal from the controller; and

(e1) performs the second shaking motion, which has an amplitude larger than that of the first shaking motion, in response to having received the second shaking motion start signal from the controller.

2. A gaming system comprising:

a dice movable unit having a plurality of dice and a shaking device causes the plurality of dice to roll;

a plurality of game terminals, each of the plurality of game terminals having an operation device that a player can operate;

memory that stores bet data that indicates an amount of a bet that the game terminal has accepted; and

a controller that executes processing of:

(a) receiving bet end signals and bet data from betted terminals among the plurality of game terminals, each of the bet end signals indicating that betting in a corresponding betted terminal has ended;

(b) storing the bet data in the memory;

(c) transmitting a first shaking motion start signal that causes a first shaking motion by the shaking device to start, to the dice movable unit;

(d) comparing the bet data stored in the memory and transmitting a permission signal, which permits an operation by the operation device of one of the betted terminals that has accepted a largest bet amount, to the one of the betted terminals;

(e) receiving an operation signal, which indicates that the operation device has been operated, from the one of the betted terminals; and

(f) transmitting a second shaking motion start signal, which causes a second shaking motion by the shaking device to start, to the dice movable unit,

wherein the dice movable unit:

(b1) starts a first shaking motion in response to having received the first shaking motion start signal from the controller; and

(f1) performs the second shaking motion, which has an amplitude larger than that of the first shaking motion, in response to having received the second shaking motion start signal from the controller.

3. A gaming system comprising:

a dice movable unit having a plurality of dice and a shaking device that causes the plurality of dice to roll;

a plurality of game terminals, each of the plurality of game terminals having a display device that performs display relating to a game and an operation device that a player can operate;

memory that stores bet data indicating an amount of a bet that the game terminal has accepted; and

a controller that executes processing of:

(a) receiving bet end signals and bet data from betted terminals among the plurality of game terminals, each of the bet end signals indicating that betting in a corresponding betted terminal has ended;

(b) storing the bet data in the memory;

(c) transmitting a first shaking motion start signal, which causes a first shaking motion by the shaking device to start, to the dice movable unit;

(d) comparing the bet data stored in the memory and transmitting a permission signal, which permits an operation by the operation device of one of the betted terminals that has accepted a largest bet amount, to the one of the betted terminals;

(e) receiving an operation signal indicating that the operation device has been operated from the one of the betted terminals; and

(f) transmitting a second shaking motion start signal, which causes a second shaking motion by the shaking device to start, to the dice movable unit and the game terminal,

wherein the dice movable unit

(b1) starts a first shaking motion in response to having received the first shaking motion start signal from the controller; and

(f1) performs the second shaking motion, which has an amplitude larger than that of the first shaking motion, in response to having received the second shaking motion start signal from the controller,

wherein the game terminal

(f1) performs processing of changing an image displayed on the display device when having received the second shaking motion start signal from the controller.

4. The gaming system according to claim 3, wherein the processing of changing the image in the processing (f2) is processing that causes an image to momentarily shake.

5. A gaming system comprising:

a dice movable unit having a plurality of dice and a shaking device that causes the plurality of dice to roll;

a plurality of game terminals, each of the plurality of game terminals having an operation device that a player can operate; and

a controller that executes processing of:

(a) receiving bet end signals from betted terminals among the plurality of game terminals, each of the bet end signals indicating betting in a corresponding betted terminal has ended;

(b) transmitting a first motion start signal, which causes a first motion by the shaking device to start, to the dice movable unit;

(c) transmitting a permission signal, which permits an operation by the operation device of a predetermined game terminal of the betted terminals, to the predetermined game terminal;

(d) receiving an operation signal, which indicates that the operation device has been operated, from the predetermined game terminal; and

(e) transmitting a second motion start signal, which causes a second motion by the shaking device to start, to the dice movable unit in response to the operation signal;

wherein the dice movable unit

(b1) starts the first motion in response having received the first motion start signal from the controller; and

(e1) performs the second motion, which is different from the first motion, in response to having received the second motion start signal from the controller.

6. A gaming system comprising:

a dice movable unit having a plurality of dice and a shaking device causes the plurality of dice to roll;

a plurality of game terminals, each of the plurality of game terminals having an operation device that a player can operate;

memory that stores bet data that indicates an amount of a bet that the game terminal has accepted; and

a controller that executes processing of:

(a) receiving bet end signals and bet data from betted terminals among the plurality of game terminals, each of the bet end signals indicating that betting in a corresponding betted terminal has ended;

(b) storing the bet data in the memory;

(c) transmitting a first motion start signal that causes a first motion by the shaking device to start, to the dice movable unit;

(d) comparing the bet data stored in the memory and transmitting a permission signal, which permits an operation by the operation device of one of the betted terminals that has accepted a largest bet amount, to the one of the betted terminals;

(e) receiving an operation signal, which indicates that the operation device has been operated, from the one of the betted terminals; and

(f) transmitting a second motion start signal, which causes a second motion by the shaking device to start, to the dice movable unit,

wherein the dice movable unit:

(b1) starts a first motion in response to having received the first motion start signal from the controller; and

(f1) performs the second motion, which is different from the first motion, in response to having received the second motion start signal from the controller.

7. A gaming system comprising:

a dice movable unit having a plurality of dice and a shaking device that causes the plurality of dice to roll;

a plurality of game terminals, each of the plurality of game terminals having a display device that performs display relating to a game and an operation device that a player can operate;

memory that stores bet data indicating an amount of a bet that the game terminal has accepted; and

a controller that executes processing of:

(a) receiving bet end signals and bet data from betted terminals among the plurality of game terminals, each of the bet end signals indicating that betting in a corresponding betted terminal has ended;

(b) storing the bet data in the memory;

(c) transmitting a first motion start signal, which causes a first motion by the shaking device to start, to the dice movable unit;

(d) comparing the bet data stored in the memory and transmitting a permission signal, which permits an operation by the operation device of one of the betted terminals that has accepted a largest bet amount, to the one of the betted terminals;

(e) receiving an operation signal indicating that the operation device has been operated from the one of the betted terminals; and

(f) transmitting a second motion start signal, which causes a second motion by the shaking device to start, to the dice movable unit and the game terminal,

wherein the dice movable unit

(b1) starts a first motion in response to having received the first motion start signal from the controller; and

(f1) performs the second motion, which is different from the first motion, in response to having received the second motion start signal from the controller,

wherein the game terminal

(f2) performs processing of changing an image displayed on the display device when having received the second motion start signal from the controller.

8. The gaming system according to claim 7, wherein the processing of changing the image in the processing (f2) is processing that causes an image to momentarily shake.

9. A gaming system comprising:

a dice movable unit having a plurality of dice and a shaking device that causes the plurality of dice to roll;

a plurality of game terminals, each of the plurality of game terminals having an operation device that a player can operate;

a controller,

wherein

(a) the controller receives bet end signals from betted terminals among the plurality of game terminals, each of the bet end signals indicating betting in a corresponding betted terminal has ended;

(b) the controller transmits a shaking motion start signal, which causes a shaking motion by the shaking device to start, to the dice movable unit;

(c) the dice movable unit starts the shaking motion in response to the shaking motion start signal from the controller, to roll the plurality of dice;

(d) the controller receives an operation signal, which indicates that the operation device has been operated, from a predetermined game terminal, and transmits a

stop-causing signal, which causes stopping of the shaking motion, to the dice movable unit in response to the operation signal; and

(*e*) *the dice movable unit stops the shaking motion after receiving the stop-causing signal.*

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