(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 1 985 337 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 158(3) EPC

(43) Date of publication:
29.10.2008 Bulletin 2008/44

(21) Application number: **07714223.0**

(22) Date of filing: **15.02.2007**

(51) Int Cl.:
A63F 9/00 *(2006.01)* ***A63F 3/06*** *(2006.01)*
A63F 5/02 *(2006.01)* ***A63F 13/00*** *(2006.01)*

(86) International application number:
PCT/JP2007/052693

(87) International publication number:
WO 2007/094393 (23.08.2007 Gazette 2007/34)

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

(30) Priority: **16.02.2006 JP 2006040034**

(71) Applicant: **Konami Digital Entertainment Co., Ltd.**
Tokyo 107-8324 (JP)

(72) Inventors:
- **OKUAKI, Masato**
  Minato-ku, Tokyo 107-8324 (JP)
- **OMOTO, Toru**
  Minato-ku, Tokyo 107-8324 (JP)
- **OKITANI, Genichiro**
  Minato-ku, Tokyo 107-8324 (JP)
- **ISHII, Shingo**
  Minato-ku, Tokyo 107-8324 (JP)

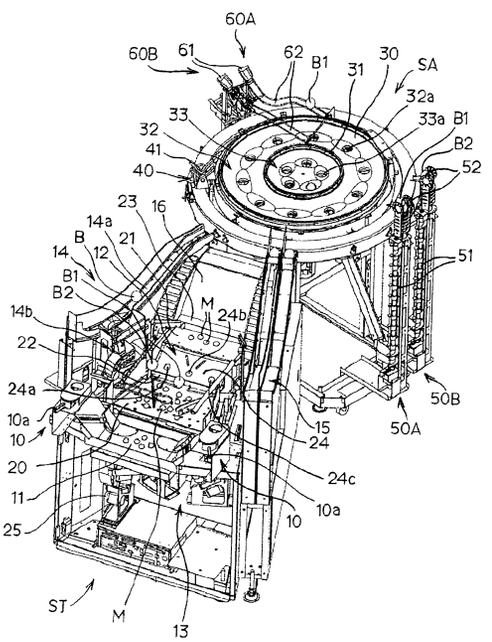
(74) Representative: **Haley, Stephen**
Gill Jennings & Every LLP
Broadgate House
7 Eldon Street
London EC2M 7LH (GB)

(54) GAME MACHINE WITH PHYSICAL LOTTERY MECHANISM

(57) There is provided a game machine capable of reflecting appropriately dispersion of lottery probabilities existing in a physical lottery system in control of a payout ratio.

A game machine comprises a physical lottery system SA and a control unit 150, the physical lottery system SA imparting a physical motion to a ball B on a bingo stage 30 having a plurality of wining prize pockets 32a, 33a corresponded to at least one option respectively, and determining a selected option depending on which of the winning prize pockets 32a, 33a the ball B has been taken in; the control unit 150 executing a predetermined game in association with the lottery result by the physical lottery system SA and delivering to a player amusement value of the amount depending on the game result, wherein a probability to select each option is calculated based on the lottery result within a predetermined sampling period, and in reference to the calculated probabilities the payout rate of amusement value in the game is controlled.

FIG. 2



EP 1 985 337 A1

Description

TECHNICAL FIELD

[0001] The present invention relates to a game machine with physical lottery system where at least one option is selected from a plurality of options by utilizing a physical motion of a medium for lottery.

BACKGROUND ART

[0002] There is known a game machine having a physical lottery system and a game execution device. The physical lottery system brings the medium for lottery such as a ball or the like into at least one of medium take portions while imparting the medium for lottery a physical motion on a lottery board, and it is recognized that the option corresponding to the medium take portion which has taken the medium for lottery is selected. The game execution device executes a predetermined game in association with the lottery result in the physical lottery system, and delivers to a player, amusement value the amount of which depends on a game result. As to this type game machine, by utilizing the physical lottery system, the game machine's intentional operation to the lottery probability of each options is difficult, and thereby the equitableness of game is maintained. Moreover, by giving uniqueness to exterior-appearance elements such as size and design of the physical lottery system, it is possible to enhance the player's eye-catch effect for the game machine. Therefore, especially in a category of game machine for commercial use to which the eye-catch effect is required, an example where this type of physical lottery system is installed is often seen.

DISCLOSURE OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0003] By the way, in the above mentioned physical lottery system, lottery probability of each option is not always equal to each other by a mechanical error. Therefore, there are sometimes existed an option which is easy to be selected and an option which is not easy to be selected. When the dispersion of lottery probability is not taken into account, a bias of a win probability in the game executed in association with the lottery result happens, and it could happen that unexpected affections are given to the control of payout rate of amusement value.

[0004] Then, the present invention aims to reflect appropriately the dispersion of lottery probabilities which appear in the physical lottery system in control of the payout rate.

MEANS FOR SOLVING THE PROBLEM

[0005] The present invention solves the above mentioned problems by the following game machine: a game machine comprises a physical lottery system for selecting at least one option from a plurality of options by utilizing physical motions of a medium for lottery; and a game execution device for executing a predetermined game in association with a lottery result of the physical lottery system, and delivering to a player, amusement value, the amount of which depends on a result of the game, wherein the game machine further comprising a probability calculation device for calculating a probability to select each option based on a lottery result within a predetermine sampling period; and a payout rate control device for controlling a payout rate of the amusement value in the game in reference to the probability calculated by the probability calculation device.

[0006] According to the game machine of the present invention, the probability that each option is selected based on the lottery result within a predetermined period is calculated, and thereby it is possible to grasp statistically the dispersion of lottery probabilities existing in the physical lottery system. Then, the payout rate is controlled in reference to the calculated lottery probabilities. Thereby, it is possible to avoid a case that the dispersion of lottery probabilities give unexpected affection to the payout rate, and to make the dispersion of lottery probabilities reflect appropriately in control of payout rate.

[0007] In one embodiment of the game machine of the present invention, the game execution device may be configured so that a pattern arrangement area is generated virtually, where a plurality of patterns are arranged in a predetermined alignment, each of the plurality of patterns corresponding to each of the plurality of options in the physical lottery system, and in a case that a predetermined win arrangement is formed by the plurality of patterns in the pattern arrangement area, each of the plurality of patterns corresponds to each of the plurality of options selected through plural lotteries in the lottery system, the amusement value is delivered to the player. According to this embodiment, in the case that the win arrangement is formed by the patterns corresponding to the selected options, the amusement value is delivered. Then, the dispersion of lottery probabilities of options is reflected in control of the arrangement of the patterns or the amount of amusement value to be delivered to the formation of win arrangement. Thereby, it is possible to realize the control of payout rate reflecting the dispersion of lottery probabilities.

[0008] In the above embodiment, the payout rate control device may control the payout rate by changing the alignment of patterns in the pattern arrangement area based on the calculated probability. In this case, if the dispersion of probabilities that each option is selected exists, the probability that the win arrangement is established in the pattern arrangement area changes depending on the dispersion of lottery probabilities of options. Accordingly, by setting the arrangement of patterns so that it becomes easy to establish the win arrangement, or by operating the arrangement of patterns so that it becomes difficult to establish the win arrangement, the

probability that the amusement value is delivered with the establishment of win arrangement is made to change, and thereby control the payout rate. Moreover, the payout rate control device may change the alignment of the patterns so that a difference between an actual value of the payout rate and a target value of the payout rate is reduced. As this, in the case the arrangement of patterns is changed, it is possible to control the payout rate to approach the target value earlier.

[0009] In one embodiment of the game machine of the present invention, the game execution device may virtually generate as the pattern arrangement area, a bingo card where the patterns are aligned in a matrix shape, in which the number of patterns in a longitudinal direction is the same number of patterns in a lateral direction, and in a case that all patterns on any one of lines in the longitudinal direction, the lateral direction, and a diagonal direction correspond to the options selected by the physical lottery system, it may be recognized that the win arrangement has been formed and the delivery of the amusement value is executed. According to this embodiment, in the case that the options corresponding to all of line of patterns in the longitudinal direction, in the lateral direction, or the diagonal direction of the bingo card are selected by the lottery system, it is recognized that the win arrangement is established, and the amusement value is delivered. In this case, if the dispersion of probabilities that each option is selected exists, depending on the contents of the combination of the patterns aligned on one line, the probability that the win arrangement is established on the line changes. Accordingly, by operating the arrangement of the patterns, it is possible to control the payout rate.

[0010] In the embodiment where a bingo card is generated, the payout rate control device may control the payout rate, in a case that the win arrangement has been formed, by changing the arrangement of patterns included in the win arrangement based on the probability calculated by the probability calculation device as to each of the options corresponding to the patterns included in the win arrangement. According to this embodiment, the payout rate can be controlled only by performing an easy operation to change the arrangement of patterns at each time when the win arrangement is established.

[0011] Moreover, in the embodiment where the arrangement of patterns changes, the payout rate control device, in a case that the actual value of the payout rate is lower than the target value of the payout rate, may change the arrangement of patterns so that the pattern corresponding to the option the win probability of which is relatively higher is arranged at a center of the win arrangement, and in a case that the actual value of the payout rate is higher than the target value of the payout rate, may change the arrangement of patterns so that the pattern corresponding to the option the win probability of which is relatively lower is arranged at a center of the win arrangement. In the bingo card, the pattern disposed at the center of the bingo card is included in any one of lines in the longitudinal, in the lateral direction, and the diagonal direction. Accordingly, when the pattern corresponding to the option which has a high lottery probability is disposed at the center of the card, the probability to establish the winning arrangement heightens, and when the pattern corresponding to the option which has a low lottery probability is disposed a the center of the card, the probability to establish the winning arrangement lower. Accordingly, in a case that the actual value of the payout rate is lower than the target value, if the pattern corresponding to the option having a high lottery probability is disposed preferentially at the center of the line where the win arrangement has been established, the pattern corresponding to the option which has a high lottery probability is disposed at the center of the card, and the probability to establish the win arrangement heightens. Thereby, it is possible to heighten earlier the payout rate toward the target value. On the other hand, in a case that the actual value of the payout rate is higher than the the target value, if the pattern corresponding to the option having a low lottery probability is disposed preferentially at the center of the line where the win arrangement has been established, the pattern corresponding to the option which has a low lottery probability is disposed at the center of the card, and the probability to establish the win arrangement lowers. Thereby, it is possible to lower earlier the payout rate toward the target value.

EFFECT OF THE INVENTION

[0012] As mentioned above, according to the game machine of the present invention, by calculating each probability to select each option based on the lottery result within a predetermined sampling period, the dispersion of lottery probabilities existing in the physical lottery system is grasped statistically. Then, by controlling the payout rate in reference to the calculated lottery probabilities, it is possible to avoid a possibility that the dispersion of lottery probabilities gives unexpected affection to the payout rate. Accordingly, it is possible to reflect appropriately the dispersion of lottery probabilities existing in the physical lottery system in control of the payout rate of the amusement value.

BRIEF DESCRIPTION OF DRAWINGS

[0013]

[FIG. 1] A diagram showing a schematic configuration of a game machine according to one embodiment of the present invention.

[FIG. 2] A perspective view showing a satellite unit and a station unit combined therewith.

[FIG. 3] A diagram showing a flow of medals in the station unit.

[FIG. 4] A diagram showing a flow of a ball in the station unit.

[FIG. 5] A perspective view showing a center unit.

[FIG.6] A block diagram showing a schematic configuration of a control system in the game machine.
[FIG.7] A flow chart of processing that the host control unit and the station control unit execute for managing the payout rate.
[FIG.8] A flow chart of a game basic control routine that the station control unit executes in response to the drop of medals.
[FIG.9] A diagram showing a game picture displayed on the monitor of the station unit.
[FIG. 10] A diagram showing a details of a bingo game portion provided in the game picture shown in FIG. 9.
[FIG. 11] A flow chart of a satellite lottery routine that the satellite control unit executes.
[FIG. 12] A flow chart of a win probability determination routine that the host control unit executes.
[FIG. 13] A diagram showing number of wins data that the host control unit holes.
[FIG. 14] A flow chart of a bingo routine that the station control unit executes in response to the notification of the result of a satellite lottery.
[FIG. 15] A diagram for explaining a way of changing arrangement of numerals on a win line in the bingo game.
[FIG. 16] A flow chart of a center lottery control routine that the center control unit executes.
[FIG. 17] A flow chart of a grand slot lottery control routine that the host control unit executes.
[FIG. 18] A flow chart of a premier mode routine that the station control unit executes instead of the game basic control routine.
[FIG. 19] A diagram showing a schematic game picture displayed on a monitor of the station.
[FIG. 20] A flow chart of a premier mode termination control that the station control unit executes for determining the termination of the premier mode.

BEST MODE FOR CARRYING OUT THE INVENTION

[0014] Using FIG. 1 to FIG. 5, the outline of configuration of the game machine G according to the present invention will be described. The game machine G has a center unit CN, four satellite units SA, and 16 station units ST. Each of the satellite units SA is disposed below the center unit CN so as to surround the center unit CN. At the surround of each satellite unit SA, 4 of the station units ST are disposed. Namely, the game machine G is configured so that the center unit CN is disposed at the center, 4 of the satellite units SA are disposed around the center unit CN, and additionally, 4 of the station units ST are disposed around each of the satellite units SA. In the station unit ST, a so-called pusher game utilizing medals as the amusement media, and a digital lottery game associated with the pusher game are performed respectively. In the satellite unit SA, a satellite lottery is performed in association with the game result of the digital lottery game in the station unit ST. In the center unit CN, a center lottery or a grand slot lottery is performed as a center game, in association with the game result of the digital lottery game at the station unit ST or the lottery result of the satellite lottery at the satellite unite SA.

[0015] FIG. 2 shows one satellite unit SA and one station unit AT which is combined with the satellite unit SA. The station unit ST comprises a pair of right and left operation portions 10 where operations relating to the game are performed by the player, a play field portion 12 where the pusher game is performed, a medal delivery portion 13 where to deliver medals M as a first game medium to the play filed portion 12, a ball drop portion 14 where to drop a ball as a second game medium into the play field portion 12, a ball transfer portion 15 where to transfer the ball B to the satellite unit SA, and a station monitor 16 where to display a game picture or the like. The play field portion 12 has a main table 20 and a sub table 32 where to store the medals M, and further has pusher tables 22, 23 sliding forwardly and backwardly on the tables 20, 21 respectively. The medals M are stored so that the main table 20 and the sub table 21 are paved by the medals M. The play field portion 12 is shielded to the outside by being surrounded with a partition wall such as a transparent board.

[0016] With reference to FIG. 3, the outline of flow of medals M at the station unit ST will be described. When the medals M is dropped by the player from a medal slot (not figured) mounted in the operation portion 10, and the medals M fall down to any one of medal hoppers 13a of the medal deliver portion 13 via a medal shoot 17. Prior to the medal drop by the player, medals M have been delivered to both medal ejection portions 18 disposed at right and left sides of the station unit ST, and the medals M have been held in both of the medal ejection portions 18 for dropping to the play field portion 12. The medals M held in the medal ejection portion 18 are transferred to a medal shoot 19 at the timing simultaneously with the timing when the medals M are dropped by the player, and the medals M are dropped onto the sub table 21 from the medal shoot 19. Additionally, the direction of the shoot 19 can be changed in a right-left direction by operating levers 10a mounted on right and left sides of the operation portion 10.

[0017] The medals M which are dropped in the play field portion 12 falls down on the sub table 21. Then, the medals M accumulate on the sub table 21 or roll down to the main table 20 from the sub table 21. The medals M accumulated on the sub table 21 are pushed forward (i.e. the side of player) by a reciprocal motion of the pusher table 23. Thereby, the medals M are pushed out of the front edge of the sub table 21, and the pushed out medals M slide off on a slope portion 24 to move to the main table 20, and are accumulated there. The medals M accumulated on the main table 20 are pushed forward by a reciprocal motion of the pusher table 22. Thereby, the medals M fall down to the surround of the main table 20. The medals M which has fallen down are collected in a lift up hopper 25 shown in FIG. 2. Then, the medals M,

the number of which is the same as the number of medals M having fallen down from the front edge of the main table 20 are delivered to the medal deliver portion 11 disposed between the operation portions 10 from the lift up hopper 25 as the medals the player obtains. As the medals M which are delivered to a place disposed at the outside of the partition wall covering the play field portion 12, it is possible for the player to accept the medals M.

[0018] Returning to FIG.2, in the slope portion 24, a plurality of openings 24a, 24b, and 24c are provided as a checker where the medals M pass through (fall down). When the medals M on the way to slide down on the slope portion 24 fall down to any one of the opening 24a, 24b and 24c, a not figured sensor detects that the medals M have passed through, and the detection signal is used as a trigger that the digital lottery game starts at the station monitor 16. The digital lottery game is one of slot games competing whether a combination of three patterns (pictures, signs, numerals or the like) displayed in a row on the station monitor 16 is equal to the predetermined win hands or not. "Ball" is prepared as one of the win hands in the digital lottery game. For example, if 3 of pictures of ball are aligned, the player wins the win hand of "ball". If the player wins this hand, the ball B is dropped onto the main table 20 from the ball drop portion 14. It will be described later that the ball B is provided to the ball drop portion 14. Additionally, in the present embodiment, different kinds of balls, one is a normal ball B1 and another one is a special ball B2, are prepared as the ball B. However, in a case that it is not needed to discriminate them, both of them are referred to as the ball B.

[0019] The ball B dropped onto the main table 20 is gradually pushed out toward the front side of the main table 20 together with the medals M by the reciprocal motion of the pusher table 22. When the ball B falls down from the front edge of the main table 20, the ball B which has fallen down is transferred to the satellite unit SA by the ball transfer portion 15. FIG. 4 shows a transfer route of the ball B provided by the ball transfer portion 15. The ball B which has fallen down from the main table 20 is taken in a ball lifter 27 via a ball duct 26. The ball lifter 27 transfers the taken ball B up to the end (the top) of slope 28 while lifting the ball B along with the slope 28. At the satellite unit SA, the satellite lottery is performed with the ball B transferred up to the end of the slope 28.

[0020] As shown in FIG. 2, the satellite unit SA comprises a bingo stage 30, a ball carrier 40 mounted to the outer circumference of the bingo stage 30, a pair of ball provision systems 50A, 50B disposed to the periphery of the bingo stage 30, and a pair of ball drop system 60A, 60B disposed across the bingo stage 30 from the ball provision system 50A, 50B. The bingo stage 30 is rotated in one direction around a vertical direction axis as a center by a not-figured drive system. The upper surface of the bingo stage 30 is divided into an outer circumference portion 32A and an inner circumference portion 32B by a fence 31 in the shape of ring. In each of the portions 32A, 32B, a winning prize pocket 32a, 33a in the shape of round having a diameter to the extent that the ball B can pass through, is mounted so that the winning prize pocket 32a, 33a penetrates the bingo stage 30. In the outer circumference portion 32A, 10 of the winning prize pockets 32a are provided, and in the inner circumference portion 32B, 5 of the winning prize pockets 33a are provided. To the winning prize pockets 32a, 33a, the numbers or the patterns to be the options in the satellite lottery are assigned respectively. To the winning prize pockets 32a in the outer circumference portion 32A, the numerals 1 to 9 and the letters of "JP chance" are assigned respectively. Additionally, "JP" in this description is used as abbreviation for a jack pot, that is, a big win. On the other hand, to each of the three winning prize pockets 33a in the inner circumference portion 32B, each 3 numerals of 1 to 9, appropriately combined, are assigned. To each of the remains of 2 winning prize pockets 33a, the letters "JP chance" are assigned.

[0021] The ball carrier 40 is capable of moving along with the outer circumference of the bingo stage 30. The ball carrier 40 transfers the ball B from the ball provision system 50A, 50B to the ball drop portion 14 of each station unit ST, and transfers the ball B from the ball transfer portion 15 of each station unit ST to the ball provision system 60A, 60B. To each lower portion of the ball provision systems 50A, 50B, the ball B has passed through the winning prize pockets 32a, 33a is selectively guided depending on the kind of the ball B. For example, the normal ball B1 is guided to the ball provision system 50A, and the special ball B2 is guided to the ball provision system 50B. The ball provision system 50A, 50B takes the guided ball B in a screw feeder 51 to transfer the ball B upward, and delivers the ball B reaching the top of the screw feeder 51 from the ejection portion 52 one by one. The ball carrier 40 moves to just below the ejection portion 52 in liaison with the delivery of the ball B from the ejection portion 52, thereby the ball B to be ejected from the ball ejection portion 52 are passed to a fork 41 of the ball carrier 40. The ball carrier 40 which has received the ball B from the ball provision system 50A, 50B moves along with the outer circumference of the bingo stage 30 up to the ball drop portion 14 of the station unit ST where the ball B should be transferred. After that, the carrier 40, by inclining the fork 41 outward, delivers the ball B to the top of the slope 14a of the ball drop portion 14. The delivered ball B slopes down through the slope 14a, and, via a drop position selection system 14b, is dropped at a arbitrary position on the main table 20.

[0022] On the other hand, in a case that the ball B is transferred to the ball transfer portion 15 of the station unit ST, the ball carrier 40 moves to the inner side of the slope 28 of the ball transfer portion 15 where the ball B has been transferred and receives the ball B from the slope 28. And then, the ball carrier 40 transfers the ball B to the position of the ball drop system 60A or 60B. It is associated with the kind of ball B which one of the ball drop systems 60A or 60B the ball carrier 40 transfers the ball B to. For example, in a case of the normal ball B1,

the ball carrier 40 transfers the ball B1 to the ball drop system 60A, while in a case of the special ball B2, the ball carrier 40 transfers the ball B2 to the ball drop system 60B.

[0023] Each of the ball drop systems 60A, 60B has a ball lifter 61 and a ball guide 62. The ball lifter 61 is capable of performing a reciprocal motion in an up and down direction. In a case that the normal ball B1 is transferred to a ball drop system 60A from the ball carrier 40, the ball lifter 61 of the ball drop system 60A gets lower. After that, the fork 41 of the ball carrier 40 is inclined to the side of ball lifter 61, and the ball B1 is passed from the ball carrier 40 to the ball lifter 61. The ball lifter 61 having received the ball B1 gets up to the top of the ball guide 62. After that, the ball lifter 61 is inclined so that a down slope is formed to the ball guide 62. Thereby, the normal ball B1 is passed to the ball guide 62. The normal ball passed to the ball guide 62 is dropped in the outer circumference 32 of the bingo stage 30 from the top of the ball guide 62. In a case that the special ball B2 is transferred to the ball drop system 60B from the ball carrier 40, the ball lifter 61 of the ball drop system 60B gets lower, and the ball B2 is passed from the ball carrier 40 to the ball lifter 61. After that, the ball lifter 61 operates in a similar way to the ball drop system 60A to pass the special ball B2 to the ball guide 62 of the ball drop system 60B. The special ball B2 passed to the ball guide 62 is dropped to the inner circumference portion 33 of the bingo stage 30 from the top of the ball guide 62.

[0024] As shown in FIG. 5, the center unit CN comprises a center monitor 70, a big roulette 71, and a big-ball drop system 72. The big roulette 71 is rotated in one direction at a predetermined speed by a not-figured driving system. A plurality of winning prize pockets 71a are provided to the periphery of the big roulette 71. To the winning prize pockets 71a, number (or number of times) of medals M and various kinds of game mode are assigned as the win hands respectively. When the center game starts, the big ball 73 for the big roulette is dropped from the ball drop system 72 to the periphery of the big roulette 71. The big ball 73 while oscillating along with the periphery of the big roulette 71 according to the rotation of the big roulette 71, enters in any one of the winning prize pockets 71a. A privilege depending on the winning prize pocket 71a which the big ball 73 has entered, is given to the player.

[0025] Additionally, to each of the station unit ST, the satellite unit SA, and the center unit CN, illumination devices and sound devices are mounted as rendering devices for warming up game mood. As the electric light devices, for example, for the station unit a plurality of LEDs (light-emitting diodes) are arranged along with a moving route from the drop of the medals M to the ejection of medals M to the play field portion 12. In the satellite unit SA, lamps are mounted to provide from the lower bingo stage 30, an illumination in the shape of ring around the rotation axis of the bingo stage 30 as the center. The winning prize pocket 71a of the big roulette 71 in the center unit CN is fringed with a plurality of LEDs. As the sound devices, speakers are provided, effect sounds and BGM (back ground music) are appropriately outputted from the speakers. As shown in FIG.1, spacers SP are provided between each of the satellite units SA of the game machine G. Below each of the spacers SP, a moving light L and a speaker for a show time are disposed.

[0026] Next, the configuration of a control system of the game machine G will be described. As shown in FIG. 6, in the game machine G, as a computer unit to control operations in the game machine G, there are provided a host control unit 100, a host PC ("PC" is an abbreviation of "personal computer) 110, a center PC 120, a center control unit 130, satellite control unit 140 and station control unit 150. The satellite control unit 140 is provided to the satellite unit SA one by one as a configuration element of the satellite unit SA. The station control unit 150 is provided to the station unit ST one by one as a configuration element of the station unit ST. Namely, in the whole of the game machine G, there are 4 of the satellite control units 140 and 16 of the station control units 150. These units 110 to 150 are connected with each other via LAN cables 160 to communicate information necessary for controlling various games or lotteries with each other. Additionally, the LAN cables 160 can be connected in a manner of so-called a star connection in which some hubs intervene at appropriate points.

[0027] The host control unit 100 executes an entire management, a coordinate control and the like of the game machine G. The host PC 110 controls operations of a main-body rendering portion 111 of the game machine G. Rendering devices not included in any one of the center unit CN, the satellite unit SA, or the station unit ST, such as the above mentioned moving lights L and the speakers on the spacers SP, are included in the main-body rendering portion 111. The center PC 120 controls a display on the center monitor 70.

[0028] The center control unit 130, by operating based on the state of the center unit CN detected by a sensor group 131, a center drive portion 132 and a center rendering portion 133, controls execution of the center game and rendering in the game utilizing the center unit CN. In the sensor group 131, a win sensor is included, which detects whether the big ball 73 enters or not in each winning prize pocket 71a of the big roulette 71. For example, a no-contact switch, or a reflection-type or transmission-type optical sensor can be employed as the win sensor. In the center drive portion 132, drive devices such as a motor for rotating the big roulette 71, actuators for driving the big ball drop system 72 and the like are included. In the center rendering portion 133, rendering devices such as lamps and speakers uniquely provided to the center unit CN.

[0029] The satellite control unit 40 controls the execution of the satellite lottery, the transfer of the ball B, and the rendering of game utilizing the satellite unit SA, by operating a satellite drive portion 142 and a satellite rendering portion 143 based on the state of the satellite unit

SA, which is detected by a sensor group 141. In the sensor group 141, a win sensor for detecting whether the ball B passes or not through each of the winning prize pockets 32a, 33a of the bingo stage 30, and a carrier position sensor for detecting the position of the ball carrier 40 in the circumferential direction. A non-contact switch or a transmission-type or reflection-type optical sensor can be employed as the win sensor. In the satellite drive portion 142, drive devices are included, such as a motor for rotating the bingo stage 30, an actuator for driving the ball carrier 40 along with the outer circumference of the bingo stage 30, an actuator for operating the fork 41 of the ball carrier 40, an actuator for driving the screw feeder 51 and the ball ejection portion 52 or the ball provision system 50A, 50B respectively, an actuator for driving upward and downward the ball lifter 61 of the ball drop system 60A, 60B. In the satellite rendering portion 143, rendering devices such as lamps and speakers uniquely mounted to the satellite unit SA.

[0030] The station control unit 150 controls the pusher game and the digital lottery game to be executed at the station unit ST and the rendering of the games utilizing the station unit ST, by operating a station drive portion 152 and a station rendering portion 153 based on the state of the station unit ST detected by a sensor group 151. Additionally, the station control unit 150 controls display of the station monitor 16. In the sensor group 151, a medal sensor group with respect to detection of the medals M, a ball sensor group with respect to detection of a ball B, and a position sensor group for detecting position of movable parts such as the lever 10a, and the pusher tables 22, 23.

[0031] In the medal sensor group, there are included a medal drop sensor for detecting the drop of medals M from the medal slot, a medal ejection sensor for detecting the ejection of medals M from the medal ejection portion 18, a checker sensor for the fall of medals M to the openings 24a to 24c as the checker, fall medal sensor for detecting the fall of medal M from the front edge of the main table 20, a medal delivery sensor for detecting the medal M to be delivered to the medal deliver portion 11 from the lift up hopper 25, and the like. Non-contact switches, optical sensors, micro switches and the like can be employed as the above sensors, like the medal sensors employed to an already-known the medal game machine. Additionally, in the ball sensor group, there are included such as a ball drop sensor for detecting the drop of ball B from the ball drop portion 14, a ball fall sensor for detecting the ball B falling down from the main table 20 and being transferred to the ball transfer portion 15. The ball fall sensor further functions as a sensor for discriminating the kind of ball B, that is, whether or not the ball which has fallen is the normal ball B1 of the special ball B2. The discrimination of the ball B can be realized by using a sensor as the ball fall sensor, which outputs different signal depending on the kind of ball B1, B2. For example, in a case that one of the balls B1 and B2 is a resin ball and another one of the balls B1 and B2 is a metal ball, it is possible to discriminate the kind of balls B1, B2 with a metal sensor. When the reflectance rate of the balls B1 and B2 are different from each other, the reflectance-type optical sensor is employed as the ball fall sensor. It is possible to discriminate the kind of ball B according to the strength of output signal from the sensor. By discriminating the kind of ball B with the ball fall sensor, it is possible to specify the ball drop system 60A, 60B to which the ball carrier 40 should transfer the ball B.

[0032] In the station drive portion 152, there are included such as a drive device for each of the medal hopper 13a and the lift up hopper 25, an actuator for realizing the operation of ejecting the medals of the medal ejection portion 18, drive devices for reciprocating the pusher tables 22, 23 such as motors, an actuator for operating the drop position selection system 14b of the ball drop portion 14, a drive derive for driving the ball lifter 27 of the ball transfer portion 15 and the like. In the station rendering portion 153, rendering devices are included such as lamps and speakers uniquely mounted to the station unit ST.

[0033] Next will be described various kinds of processing executed by the game machine G, with reference to FIG. 7 to FIG.20. First, the management of payout rate in the game machine G will be described. In the game machine G of the present embodiment, in each station unit ST, by the station control unit 150, the number of dropped medals M and the number of delivered medals M are counted and the payout rate is calculated with an appropriate period for each station unit ST. When the number of dropped medals M detected by the medal drop sensor within a predetermined period for calculation is referred to as NSTin, and the number of ejected medals M detected by the medal ejection sensor within the same period is referred to as NSTout, the percentage of the value NSTout/NSTin obtained by dividing the later by the former is calculated. Thereby, it is possible to determine the payout rate POst in the present state of the station unit ST within the predetermined period for calculation. However, in a case that the game machine G has functions for holding the number of medals M charged by the player as the number of credits, and dropping medals M, the number of which is withdrawn from the number of credits, to the play field portion 12 from the medal ejection portion 18, and executing the addition to the number of credits for realizing the delivery of medals M, it is necessary to calculate the payout rate POst by adding the number of medals M to be reduced from the number of credits to the number of dropped medals NSTin and adding the number of medals M to be added to the number of credits to the number of delivery medals NSTout.

[0034] In the game machine G of the present embodiment, so that the payout rate POst of each of the station units ST is appropriately equal to each other, the processing shown in FIG. 7 is executed by the linkage of the host control unit 100 and each of the station control units 150. Namely, the host control unit 100 executes a routine for managing an entire payout rate in an appropriate cycle,

and in synchronism with that, each station control unit 150 executes a routine for managing individual payout rate. When these routines start, firstly the station control unit 150 notifies the host control unit 100 of the payout rate POst calculated in itself at step S11. In response to this, the host control unit 100 obtains the payout rate POst of each station unit ST at step S21, and subsequently at step S22, calculates an entire payout rate POall and notifies each station control unit 150 of the calculation result. The entire payout rate POall, for example, can be a simple average of the payout rates POst of the station units ST.

[0035] The station control unit 150 obtains the payout rate POall from the host control unit 100 at step S12, and subsequently at step S13, determines a target payout rate POsttgt of its own station unit ST based on the difference between the own payout rate Post and the entire payout rate POall. In each station control unit 150, a standard target payout rate is set as a initial value in advance. Then, each station control unit 150 appropriately adjusts a win probability (a probability of establishing the win hands) of the digital lottery game so that the payout rate POst calculated in itself is controlled to approach the initial value of a target payout rate POsttgt. Moreover, at step S13, in a case that a difference between the own payout rate POst and the entire payout rate POall increases beyond an permissible range, so as to reduce the difference, the station control unit 150 adjusts the target payout rate POsttgt. For example, in a case that the own payout rate POst is higher than the entire payout rate POall, the target payout rate POsttgt is set to be lower than the initial value. In this manner, by changing the target payout rate POsttgt, it is possible to reduce the dispersion of payout rates POst.

[0036] Next, in reference to FIG. 8, the control of the game at the station unit ST will be described. At each station unit ST, while the pusher tables 22, 23 repeat the reciprocal motion at a predetermined frequency, medals M are dropped into the play field portion 12 according to the drop of medals M from the medal slot, and thereby a medal pusher game is performed. FIG. 8 shows a flow chart of a game basic control routine executed by the station control unit 150 in response to the detection of drop of medals M from the medal slot. In the game basic control routine shown in FIG. 8, the station control unit 150 firstly executes at step S101, a processing required to drop the medals M into the play field portion 12. The flow of medals M at this moment is above mentioned in reference to FIG. 3.

[0037] At next step S102, the station control unit 150 determines whether or not the medals M have entered any one of the openings portions 24a to 24c as the the checker. When the medals M have entered the checker, the station control unit 150 goes to step S103 to start the slot lottery of the digital lottery game. Namely, the station control unit 150 displays the game picture 200 shown in FIG. 9 on the station monitor 16, and selects by using random numbers or the like, patterns to be displayed in each of changeable display portions 201a, 201b, 201c disposed on a line in the game picture 200. The process for determining the patterns may be executed based on a control law of a conventional slot machine. Then, the selected patterns are displayed, while each of the changeable display portion 201a, 201b, 201c is given a predetermined rendering effects (animation and the like). Note that, the game picture 200 has also a bingo game portion 210,but this will be described later.

[0038] After the slot lottery ends, the station control unit 150 goes to step S104 to determine whether or not the combination of the three patterns determined in the slot lottery is a losing hand or not. In a case of the losing hand, the station control unit 150 terminates this routine. On the other hand, at step S140, in a case of the combination is not the losing hand, namely, in a case of establishing the win hand in the slot lottery, the station control unit 150 goes to step S105 and after step S105 to execute processing appropriate to the kind of win hand. Namely, the station control unit 150, firstly at step S107, whether or not a win hand of "ball" is established. In a case of establishing the win hand of "ball", the station control unit 150 goes to step S106 to deliver (drop) the normal ball B1 to the play field portion 12. Namely, the station control unit 150 requires the delivery of the normal ball B1 to the satellite control unit 140. In response to the require, the satellite control unit 140 requires the ball provision system 50A to eject the normal ball B1 therefrom, and delivers the ejected ball to the slope 14a of the ball drop portion 14 by the ball carrier 40. In sync with the delivery of the normal ball B1, the station control unit 150 operates the drop position selection system 14b of the ball drop portion 14 to drop the normal ball B1 to an appropriate position in the play field portion 12. When the drop of the normal ball B1 is accomplished, the station control unit 150 terminates this routine.

[0039] At step S104, in a case that the win hand of "ball" is not established, the station control unit 150 goes to step S107 to determine whether or not the win hand of "ordinary patterns" in the slot lottery has been established. In a case of the win hand of "ordinary patterns", the station control unit 150 goes to step S108 to execute processing for providing medals M, the number of which corresponds to the win hand of "ordinary patterns", to the play field portion 12 from the medal provision portion 13. Hereinafter, the delivery of medals M means the delivery of medals M from the lift up hopper 25 to the medal delivery portion 11, and the provision of medals M means the delivery of medals M from the medal provision portion 13 to the play field portion 12. The provision of medals M from the medal provision portion 13 may be only a route through the medal ejection portion 18 and the medal shoot 19. However, in a case of delivering a big amount of medals M to the play field portion 12 at one time, the medals M may be provided through other routes.

[0040] Subsequently at step S109, the station control unit 150 sets the mode of slot lottery to an ordinary mode, and after that terminates this routine. The mode of slot

lottery will be described. At step S107, in a case that the win hand of "ordinary patterns" is not established, the station control unit 150 goes to step S110 to determine whether or not the win hand of "probability oscillation patterns" has been established. In a case that the win hand of "probability oscillation patterns" has been established, the station control unit 150 goes to step S111 to provide the medals M, the number of which corresponds to the "probability oscillation patterns", to the play field portion 12. Subsequently at step S112, the station control unit 150 sets the mode of slot lottery to the probability oscillation mode, and after that terminates this routine. The probability oscillation mode is a mode where the probability of establishing the win hand in the slot lottery is heightened compared with a normal mode. That is to say, in a case that the win hand of "probability oscillation patterns" is established, at step S112, the probability oscillation mode is started or the same mode is maintained. Then, in a case that the win hand of "ordinary patterns" has been established in the probability oscillation mode, the probability oscillation mode is terminated by the processing of stepS109.

[0041] At step S110, in the case that the win hand of "probability oscillation patterns" is not established, the station control unit 150 goes to step S113 to determine whether or not the win hand of "bingo feature" has been established. In the case that the win hand of "bingo feature" has been established, the station control unit 150 goes to step S114 to execute a bingo card feature setting processing. The bingo card feature setting processing is a processing for changing an expected value of player with respect to the number of delivering medals M by changing player's privilege in a bingo game executed in combination with the bingo cards 211 displayed on the bingo game portion 210 shown in FIG. 9. Hereinafter this point will be described.

[0042] FIG. 10 shows the magnified bingo game portion 210. In the bingo game portion 210, the bingo card 211 is displayed. The bingo card 211 is made up of such 9 boxes as arranged in a matrix shape having 3 lines and 3 rows, and the boxes are assigned to the numerals 1 to 9 respectively. Each of the numerals corresponds to the numeral assigned to the winning prize pocket 32a, 33a in the bingo stage 30 of the satellite unit SA. When the ball B drops in any one of the winning prize pockets 32a, 33a in the satellite lottery, the numeral assigned to the winning prize pocket 32a, 33a becomes active. When three active numerals are aligned in a longitudinal direction, in a lateral direction or in a diagonal direction of the bingo cards 211, the bingo is established. And then, the medals M the number of which is displayed on an odds display area 212 are provided to the play field portion 12. A bingo feature display area 213 is provided at the left side and the bottom side of the bingo card 211. In the bingo feature display area 213, feature display portions 214a to 214 h are provided, each of which corresponds to a lateral line, a longitudinal line, or a diagonal line of the bingo card 211. In each of the feature display portions 214a to 214h, a pattern is displayed which corresponds to the privilege to be provided to the player in addition to the provision of medals M the number of which is displayed in the odds display area 212, when the bingo is established, that is, three active numerals are aligned on the corresponding line. These privileges affect directly or indirectly the provision of medals to the player, and the affections of the privileges given to the payout rate are different from each other. In this embodiment, there are prepared as the privilege such that the addition of the bonus number of medals to the number of medals displayed in the odds display area 212, the drop of the normal ball B1 or the special ball B2 to the play field portion 120, the donation of "JP chance", and the like. In the example shown in FIG. 10, the pattern indicating the drop of the special ball B2 is appearing in each of the feature display portions 214a, 214e, the pattern indicating the drop of the normal ball B1 is appearing in each of the feature display portions 214b, 214d, 214f, 214h, and the pattern indicating the donation of "JP chance" is appearing in the feature display portion 214c. Accordingly, for example, in a case that three active numerals are aligned in the lateral direction on the upmost line of the bingo cart 211, in response to establishing the bingo, the special ball B2 is dropped in the play field portion 120.

[0043] In the bingo card feature setting processing at step S114 in FIG. 8, by adding newly or changing the pattern (the privilege) to be allowed to appear in any one of the feature display portions 214a to 214h, the privilege the player obtains at the moment of establishing the bingo is changed. Thereby, it is possible to control the payout rate of medals. For example, when the actual payout rate POst is lower than the target payout rate POsttgt, it is possible to converge the payout rate POst to the target payout rate POsttgt more quickly, by selecting among plural privileges prepared in advance, a privilege having a bigger affection to increase the payout rate, in other words, selecting preferentially a privilege connected with the delivery of bigger amount of medals compared with the other privileges. On the contrary, when the actual payout rate POst is higher than the target payout rate POsttgt, it is possible to converge the payout rate POst to the target payout rate POsttgt more quickly, by selecting among plural privileges prepared in advance, a privilege having a smaller affection to increase the payout rate, in other words, selecting preferentially a privilege connected with the delivery of smaller amount of medals compared with the other privileges. The selection of these privileges can be realized, for example, by the following: the amount of the affection each privilege gives to the payout rate is quantified in advance, depending on the quantified value, the probability of selecting each privilege is set basically. In a case of controlling to heighten the payout rate, the selection probability of privileges having a bigger affection to the payout rate(the affection only for heightening the payout rate)may be made higher than the basic set, and on the contrary in a case of controlling for lowing the payout rate, the selection probability

of privileges having a smaller affection to the payout rate may be made higher than the basic set. When the feature setting processing is accomplished at step S114, the station control unit 150 terminates this routine.

[0044] In a case that the win hand of "the bingo feature" is not established at step S113 of FIG. 8, the station control unit 150 goes to step S115 to determine whether or not the win hand of "direct satellite" has been established. In a case that the win hand of "direct satellite" has been established, the station control unit 150 goes to step S123. On the other hand, the win hand of "direct supply" is not established, the station control unit 150 goes to step S116 to recognize that the win hand of "direct center" has been established. Subsequently at step S123, the station control unit 150 requires the center control unit 130 to execute the center lottery and after that terminates this routine. Note that, in this case, as the ball B is not transferred to the ball transfer portion 15, the satellite lottery is performed by delivering the ball B1 to the ball carrier 40 from the ball provision system 50A, and transferring the ball B1 to the ball drop system 60A.

[0045] In a case that the medals M do not enter the checker at step S102 in FIG. 8, the station control unit 150 goes to step S120 to determine whether or not the ball B has fallen down from the main table 20. In a case that the ball B does not fall, the station control unit 150 terminates this routine. On the other hand, in a case that the ball B has fallen, the station control unit 150 goes to step S121 to discriminate whether or not the ball which has fallen is the special ball B2. The discrimination of the kinds of ball B is aforementioned with respect to the sensor group 151 in FIG. 6. In a case that the ball B which has fallen is the special ball B2, the station control unit 120 goes to step S122 to determine that the satellite lottery should be performed at the inner circumference portion 33 of the bingo stage 30. On the other hand, in a case that the ball which have fallen is not the special ball B2, the station control unit 150 goes to step S123 to determine that the satellite lottery should be performed at the outer circumference potion 32 of the bingo stage 30. After determining the area where the satellite lottery should be performed, the station control unit 150 goes to step S124 to require the satellite lottery to the satellite control unit 140. In this case, the station control unit 150 also provides to the satellite control unit 140, the information of specifying whether the satellite lottery should be performed in the outer circumference portion 32 or in the inner circumference portion 33. After requiring the satellite lottery, the station control unit 150 terminates this routine. Additionally, in harmony with the requirement of the satellite lottery, the station control unit 150 controls operations of the ball transfer portion 15 so that the ball B which has fallen is transferred to the end of slope 28.

[0046] FIG. 11 shows a flow chart of a satellite lottery routine which the satellite control unit 140 executes in response to the requirement of the satellite lottery from the station control unit 150. In the satellite lottery routine, the satellite control unit 140, firstly at step S201, determines whether the satellite lottery should be performed in the outer circumference portion 32 or the inner circumference portion 33 by the information provided from the station control unit 150. In a case that the satellite lottery should be performed in the outer circumference portion 32, the satellite control unit 140 goes to step S202 to control operations of the ball carrier 40 and the ball drop system 60A, so that the ball B (in this case , the normal ball B1) transferred by the ball transfer portion 15 of the station unit ST is dropped onto the outer circumference portion 32 from the ball drop system 60A. On the other hand, In a case that the satellite lottery should be performed in the inner circumference portion 33, the satellite control unit 140 goes to step S203 to control operations of the ball carrier 40 and the ball drop system 60B, so that the ball B (in this case , the special ball B2) transferred by the ball transfer portion 15 of the station unit ST is dropped onto the inner circumference portion 33 from the ball drop system 60B.

[0047] After dropping the ball B, the satellite control unit 140 goes to step S204, reads out which one of the winning prize pockets 32a (or 33a)the dropped ball B has fallen into, based on the detection signal of the win sensor included in the sensor group 140. Subsequently, at step S205, the satellite control unit 140 determines whether or not the winning prize pocket 32a (or 33a) into which the ball B has fallen is a JP chance pocket, that is, a winning prize pocket having the letters of "JP chance". Then, in a case that the the winning prize pocket 32a (or 33a) is the JP chance pocket, the satellite control unit 140 goes to step S206 to require the center lottery to the center control unit 130. In a case that the winning prize pocket 32a (or 33a) is not the JP chance pocket, step S206 is skipped.

[0048] In the next step S207, the satellite control unit 140 notifies the host control unit 100 and the station control unit 150 (which has required the satellite lottery) of the the number or letter of the winning prize pocket 32a (or 33a) which the ball B has fallen into. After notifying of that, the satellite control unit 140 terminates the satellite lottery routine.

[0049] FIG.12 shows a flow chart of a win probability determination routine which the host control unit 100 executes in response to the notification of the number or letter (hereinafter, referred to as the number) of winning prize pocket from the satellite control unit 140. As the probabilities (ease in entering of the ball) that the ball B falls into the winning prize pockets 32a, 33a of the bingo stage 30 are not equal to each other because of mechanical error and the like, this routine is executed to recognize the dispersion of the probabilities and reflect it to the control of game. In this routine, the host control unit 100, firstly at step S301, updates the number of wins data in response to the notification of the winning-prize pocket number from the satellite control unit 140. The number of wins data is, for example as shown in FIG. 13, data storing each number of winning prize pocket (the numer-

als of 1 to 9 or "JP") assigned to each winning prize pocket 32a, 33a, and each number of wins N1 to N9, Njp which is corresponded to each number of the winning prize pocket. The number of wins is obtained within an appropriate sampling period (for instance, the past 1000 times of lotteries). For example, in a case that the notification that in the satellite lottery the ball B1 has fallen into the winning prize pocket 32a, to which the number of 1 is assigned, is accepted, 1 is added to the number of wins N1 for the pocket number 1, and 1 is subtracted from the number of wins Nx for the pocket number x (x is any one of 1 to 9, or "JP") corresponding to the oldest lottery chance within the sampling period.

[0050] Next, the host control unit 100, at step S302, calculates the win probability for each pocket number. The calculation obtains the value by dividing the number of wins N1 to N9, Njp for each pocket number by the number of times of lottery within the sampling period. Note that the calculation with respect to the probability of win for the pocket number JP corresponding to "JP chance" can be omitted. Subsequently, at step S302, the host control unit 100 notifies the station control unit 150 of the probability of win for each calculated pocket number, and after that terminates this routine. Note that the station control unit 150 which becomes a notified destination at step S303 is the control unit 150 of each of the 4 station units ST combined with the satellite unit SA including the satellite control unit 140 which has notified of the result of the satellite lottery. Namely, the win probability determination routine is executed for each unit independently. The each unit comprises the satellite unit SA and 4 station units SA combined therewith.

[0051] FIG. 14 shows a flow chart of a bingo game routine to be executed by the station control unit 150 which has been notified of the number of winning prize pocket from the satellite control unit 140. In the bingo game routine, the station control unit 150, firstly at step S131, activates on the bingo card 211, the numerals which are the same as the number of winning prize pocket 32a or 33a of which has been notified from the satellite control unit 140. However, in a case that the winning prize pocket is "JP chance", the activation is not executed.

[0052] Subsequently at step S132, the station control unit 150 determines whether the bingo has been established on the bingo card 211, that is, three active numerals has been aligned on a line. In a case that the bingo has been established, the station control unit 150 goes to step S133 to provide to the play field 12, the medals M the number of which is obtained by totalizing the bingo WIN medals and the repeat WIN medals. The bingo WIN medals is the number displayed in the odds display area 212 shown in FIG. 10. The repeat WIN medals is the number displayed in the repeat medals display portion 215 shown in FIG. 10. The repeat WIN medals will be described later. Moreover, at step S133, the station control unit 150 gives to the player, the privilege corresponding to the pattern appearing in the display portion of the line or row where the bingo has been established (hereinafter, referred to as the win line.) within the feature display portions 214a to 214h of the bingo game portion 210 shown in FIG.10. In this embodiment, as the privilege, for example, the number of medals to be delivered is added, the ball B is dropped, or "JP chance" is donated. The donation of "JP chance" is a requirement of the center lottery like the case that the processing advances from step S205 to step S206 in FIG. 12.

[0053] In the next step S135, the station control unit 150 resets the feature on the win line, that is eliminates the privilege corresponds to the win line. After that, the station control unit 150 goes to step S136 to obtain the win probability of each pocket number of which has been notified by the host control unit 100. Subsequently at step S137, the station control unit 150 change the arrangement of the numerals on the win line in reference to the win probabilities of the pocket numbers and the difference between the payout rate POst and the target payout rate POsttgt. For example, the case shown in FIG. 15 will be explained. In the case, the center line of the bingo card is a win line, the numerals on the win line are 7, 6, and 4, and the win probabilities P7, P6 and P4 of the winning-prize pocket numbers corresponding to the above these numerals have a relationship such as P7>P6>P4. In the processing for changing arrangement at step S137, the order of the three numerals arranged on this win line is reset. The center box of the bingo card is a box included in all of the directions which are longitudinal, lateral and diagonal. In a case that high value of the win probability is set to the center box, the probability of establishing the bingo is heightened comparatively compared with the case that low value of the win probability is set there. Then, in the change of arrangement at step S137, in a case that the target payout rate POsstgt is enough higher than the actual payout rate POst, the highest value 7 in the win probabilities is set to the center box, and the other values are assigned to the right box and the left box respectively. Thereby, the probability of establishing the bingo gets higher. On the other hand, in the case that the target payout rate POsttgt is enough lower than the actual payout rate POst, the lowest value 4 in the win probabilities is set to the center box, and the other values are assigned to the right box and the left box respectively. Thereby, the probability of establishing the bingo gets lower. As mentioned above, by changing the arrangement of numerals depending on the win probabilities to change the probability of establishing the bingo, it is possible to change the payout POst toward the target payout rate POsttgt more quickly.

[0054] Returning to FIG. 14, the explanation is continued. After changing the arrangement of numerals on the win line, the station control unit 150 terminates this routine. After the change of arrangement, each of the numerals on the win line becomes inactivated to be in an initial state. On the other hand, at step S132 in a case that the bingo is not established, the station control unit 150 goes to step S140 to determine whether the winning-prize pocket number is a repeat or not. In a case that the

numeral of which has been notified in the satellite lottery is already activated on the bingo card 211, the pocket number is determined as a repeat. In a case of determining the pocket number as a repeat, the station control unit 150 goes to step S141 to add one step to a repeat step. Namely, the repeat WIN medals displayed in the repeat medals display portion 215 shown in FIG. 10 are changed to a one-step bigger value. In the example shown in FIG. 10, the repeat WIN medals increases gradually, such that 10 repeat medals to 1 of repeat count, 20 repeat medals to 2 of repeat count, and 40 repeat medals to 3 Of repeat count. At the moment of establishing the bingo, the medals the number of which is the same as the repeat WIN medals depending on the repeat count are provided to the play field portion 12 (refer to step S133).

[0055] Subsequently at step S142, the station control unit 150 delivers the normal ball B1 to the play field portion 12. This processing may be the same as the processing of step S106 in FIG. 8. After delivering the normal ball B1, the station control unit 150 terminates this routine. In a case that it is determined that the winning-prize pocket number is not a repeat at step S140, the station control unit 150 goes to step S143 to provide a predetermined medals M and terminate this routine.

[0056] FIG. 16 shows a flow chart of a center lottery routine which the center control unit 130 executes in response to the requirement of the center lottery. The center lottery is required in a case that the bingo feature given at step S133 in FIG. 14 is "JP chance", besides at step S117 in FIG. 8 and at step S206 in FIG. 11. In the center control routine, the center control unit 130 firstly at step S401, executes the center lottery. Namely, while rotating the big roulette 71, the center control unit 130 makes the big ball drop system 72 drop the big ball 73. Subsequently at step S402, the center control unit 130 determines whether the big ball 73 has entered the winning prize pocket 71a defined as JP donation pocket. In a case that it takes rather long time for the big ball 73 to enter after the drop of the big ball 73, the processing may be stopped when the big ball 73 is dropped, and the processing in FIG.16 may be restarted by a detection as a trigger that the big ball 73 enters any one of the winning prize pockets 71a in the big roulette 71.

[0057] In a case that it is determined that the big ball 73 has entered the JP donation pocket at step S402, the center control unit 130 goes to step S403 to instruct the station control unit 150, which has required the center lottery, to provide to the play filed portion 12, the medals the number of which corresponds to the JP win. After instructing the provision of medals, the center control unit 130 terminates this routine. Additionally, in a case that the center lottery is required from the satellite control unit 140, the station control unit 150 which has required the satellite lottery to the satellite control unit 140 is a notified destination of the instruction to provide medals. On the other hand, in a case that the big ball 73 does not enter the JP donation pocket at step S402, the center control unit 130 goes to step S404 to determine whether or not the big ball 73 has entered the winning prize pocket 71a defined as a grand slot pocket. In a case that the big ball 73 has entered the ground slot pocket, the center control unit 130 goes to step S405 to require the host control unit 100 to execute the grand slot lottery, and after that terminates this routine.

[0058] In a case that the big ball 73 does not enter the ground slot pocket at step S404, the center control unit 130 goes to step S406 to instruct the station control unit 150 to provide medals M the number of which corresponds to the center lottery to the play field portion 12. The number of medals in this case is enough smaller than the number of medals instructed at step S403. Different number can be instructed depending on the kind of the winning prize pocket 71a which the big ball 73 has been taken in. The notified destination of the instruction to provide medals is the same as the one in the case of step S403. After instructing the provision of medals, the center control unit 130 terminates this routine.

[0059] FIG. 17 shows a flow chart of a ground slot lottery routine which the host control unit 100 executes in response to the requirement of the ground slot lottery (step S405 in FIG. 16) from the center control unit 130. In the ground slot lottery routine, the host control unit 100 firstly at step S501, executes the ground slot lottery. The ground slot lottery is a slot lottery to compete for establishing the win hand based on the combination of three patterns, similar to the digital lottery game performed on the station monitor 16 of the station unit ST. However, the game picture of the ground slot lottery is displayed on the center monitor 70 via the center PC 120. At the moment of determination of the combination of patterns in the ground slot lottery, in other words, determination of the win probability in the ground slot lottery, the entire payout rate POall calculated in the processing in FIG. 7 may be referred.

[0060] After executing the ground slot lottery, the host control unit 100 goes to step S502 to determine whether or not a win hand of "premier mode" has been established in the ground slot lottery. In a case that the win hand of "premier mode" has been established, the host control unit 100 goes to step S503 to require the station control unit 150 to shift to the premier mode. The required destination in this case is the station control unit 150 which has required the center control unit 130 to execute the center lottery caused the requirement of the ground slot lottery at step S405 in FIG. 16. After requiring the shift to the premier mode, the host control unit 100 terminates this routine.

[0061] In a case that the win hand of "premier mode" is not established at step S502, the host control unit 100 goes to step S504 to determine whether or not a win hand of "satellite game" has been established. In a case that the win hand of "satellite game" has been established, the host control goes to step S505 to require the satellite control unit 140 which has required the center lottery to execute a predetermined center game. After

requiring that, the host control unit 100 terminates this routine. the satellite control unit 140 required to execute the satellite game, executes the satellite game in accordance with a predetermined process, and instructs the station control unit 150 (same as the required destination at step S503) to provide medals M depending on the game result.

[0062] In a case that the win hand of "satellite game" is not established at step S504, the host control unit 100 goes to step S506 to determine whether or not a win hand of "medal WIN" has been established. In a case that the win hand of "medal WIN" has been established, the host control unit 100 goes to step S507 to instruct the station control unit 150 to provide medals the number of which is obtained by adding the medals corresponding to the win hand of "medal WIN" to the JP medals (the provision medals instructed at step S403 in FIG. 16). The instructed destination is the same as the one at step S503. After requiring the provision of medals, the host control unit 100 terminates this routine.

[0063] In a case that the win hand of "medal WIN" is not established at step S506, the host control computer 100 goes to step S508 to require the center control unit 130 to re-execute the center lottery. In response to this, the center control unit 130 re-executes the center lottery in FIG. 16. After requiring to re-execute the center lottery, the host control unit 100 terminates this routine.

[0064] FIG. 18 shows a flow chart of a premier mode routine which the station control unit 150 executes in a case that the shift to the premier mode is required from the host control unit 100 (step S503 in FIG. 17). This routine is executed instead of the game basic control routine in FIG. 8 when the drop of medals to the play field portion 12 is detected. Namely, At the moment of executing the premier mode, the game control based on the game basic control routine is not executed. Moreover, in a case that the premier mode is executed, the game picture 220 shown in FIG. 19 instead of the game picture 200 shown in FIG. 9 is displayed on the station monitor 16. The game picture 220 resembles the game picture 200 in FIG. 9 in that three changeable display portions 201a, 201b, 201c are provided in a lateral direction, but different form the game picture 200 in that a continuation condition display portion 221 instead of the bingo game portion 210 is provided on the upper side of screen. In the continuation condition display portion 221, the numerals 1 to 9 are arranged on a line, and each of the numerals are represented in a different state depending on whether the numeral is active or inactive as a value to continue the premier mode. In FIG. 19, a circle is put to each of the active numerals and a cross is put to each of the inactive numerals.

[0065] In the premier mode routine, the station control unit 150 firstly step S151, executes a medal drop processing , and subsequently at step S151 determines whether or not the medals M has entered the checker. In a case that the medals M have entered the checker, the station control unit 150 goes to step S153 to execute the slot lottery as the digital lottery game performed on the station monitor 16. The win hand at this moment is limited to the case that three same numerals has appeared. Additionally, the win probability is set to be higher than the one at step S103 in FIG. 8. Subsequently at step S154, the station control unit 150 determines whether or not the combination of patterns obtained in the slot lottery is a losing hand, and in a case of the losing hand, terminates this routine.

[0066] On the other hand, in a case of not the losing hand at step S154, the station control unit 150 goes to step S155 to provide to the play filed portion 12, the medals M the number of which is dependent on the win hand in the slot lottery. Subsequently at step S156, the station control unit 150 switches between an active state and an inactive state with respect to the win number, that is, the numeral, three of which have appeared. For example, as shown in FIG. 19, in a case that the win hand made up of three of numerals 3 has been established, the state of numeral 3 is switched between the active state and the inactive state. For example, in FIG.19, the circle is put to numeral 3 in the continuation condition display portion 221, which means that the numeral 3 is active. However, when three of numerals 3 have appeared, the state of numeral 3 is switched from the active state to the inactive state, and in accordance with this, the state of numeral 3 displayed in the continuation condition display portion 221 is switched from the state that the circle is put to the state that the cross is put. After switching between the state of active and the state of inactive, the station control unit 150 terminates this routine.

[0067] On the other hand, in a case that the medals M do not enter the checker at step S152, the station control unit 150 goes to step S160 to determine whether or not the ball B has fallen from the main table 20. In a case that the ball B hasn't fallen, this routine is terminated. On the other hand, in a case that the ball B has fallen, the station control unit 150 goes to step S161 to determine whether or not the ball B which has fallen is the special ball B2. The discrimination of the kind of ball B is above mentioned with respect to the sensor group 151 in FIG. 6. In a case that the ball which has fallen is the special ball B2, the station control unit 150 goes to step S162 to determine that the satellite lottery should be performed at the inner circumference portion 33 of the bingo stage 30. On the other hand, in a case that the ball B which has fallen is not the special ball B2, the station control unit 150 goes to step S163 to determine that the satellite lottery should be performed at the outer circumference portion 32 of the bingo stage 30. After determining the area where the satellite game should be performed, the station control unit 150 goes to step S164 to require the satellite lottery to the satellite control unit 140. In this case, the station control unit 150 also provides to the satellite control unit 140, the information of specifying whether the satellite lottery should be performed at the outer circumference portion 32 or the inner circumference portion 33. After requiring the satellite lottery, the

station control unit 150 terminates this routine. Additionally, in addition to the require of the satellite lottery, the station control unit 150 controls the operations of the ball transfer portion 150 so that the ball B which has fallen is transferred to the end of the slope 28.

[0068] The satellite control unit 140 to which the satellite lottery is required in the processing at step S164 in FIG. 18 executes the satellite lottery in accordance with the process in FIG. 11. In response to the result of the satellite lottery, the station control unit 150 executes a premier mode termination control routine shown in FIG. 20. This routine is a routine for controlling to continue or terminate the premier mode. At the first step S171, the station control unit 150 obtains the number of winning prize pocket of which has been notified by the satellite control unit 140. At the next step S172, the station control unit 150 determines whether or not the winning-prize pocket number obtained at step S171 is "JP" or not, that is the ball B has entered the JP chance pocket. In a case that the winning-prize pocket number is "JP", the station control unit 150 goes to step S173 to terminate the premier mode and get back the processing to the game basic control shown in FIG.8. After that, the station control unit 150 terminates this routine. In FIG.20, the premier mode is only terminated, and in a case that "JP chance" appears in the satellite lottery, the process advances to the processing of and after the center lottery in FIG. 16.

[0069] In a case that the winning-prize pocket number is not "JP" at step S172 in FIG. 20, the station control unit 150 goes to step S174 to determine whether or not the winning-prize pocket number is the inactive numeral. This inactive numeral is a numeral to which the cross is put in the continuation condition display portion 221 of the game picture 220 in FIG. 19. In a case that the winning-prize pocket number is equal to one of the inactive numerals, the station control unit 150 goes to step S173. In a case that the winning-prize pocket number is not any of the inactive numerals, the station control unit 150 skips step S173 and terminates this routine. According to the above mentioned routine, in a case that the ball B has fallen into the winning prize pocket the number of which is equal to one of the inactive numerals, and in a case that JP chance has appeared in the satellite lottery and the process advances to the center lottery, the premier mode is terminated. Accordingly, in a case that the number of the winning prize pocket which the ball B has fallen into in the satellite lottery is equal to one of the active numerals, the premier mode is continued.

[0070] In the above embodiment, the satellite unit SA and the ball B correspond to the physical lottery system and the medium for lottery respectively. The station control unit 150 corresponds to the game execution device and the payout rate control device. The host control unit 100 corresponds to the probability calculation device.

[0071] The present invention is not limited to the above embodiment but also can be realized by various embodiments. For example, in the above embodiment, the ball as the medium for lottery is dropped via the play field portion 12, but the satellite lottery may be executed not via the play field portion 12. The physical lottery system is not limited to the configuration such as satellite SA, but also can be appropriately changed to something able to select randomly at least one option by imparting a physical motion to a medium for lottery. For example, a physical lottery system where at least one option is selected by utilizing spots of a dice, two sides of coins and the like can be employed. Alternatively, a physical lottery system can be employed, where a physical motion is imparted to a medium for lottery on a lottery board having plural medium take portions each of which corresponds to each at least one option, and selected option is determined depending on which medium take portion the medium for lottery has been taken into. The game execution device is not limited to a device for executing the bingo game, but also can be appropriately changed to a device as long as the device executes a game in association with the lottery result in the physical lottery system. For example, in the case that a pattern arrangement area where patterns are aligned in a matrix shape is generated, it can be determined that a win arrangement is established when patterns corresponding to selected options are arranged at the four corners of the pattern arrangement area.

[0072] The payout rate control device is not limited to the above example that the arrangement of patterns on the bingo card is changed, gut can change various elements giving an affection on the payout rate. For example, in the above embodiment , if the slot lottery executed in the premier mode is operated so that the numeral which is the same number of the winning prize pocket having a high win probability of the ball B becomes inactivate (the symbol "×") , and the numeral which is the same number of the winning prize pocket hiving a low win probability becomes activate (the symbol "○") , the probability to terminate the premier mode is heightened, and thereby, the effect that the rising of payout rate is reduced can be performed. Depending on the arrangement of numerals on the bingo card 211, each line might have a different probability to establish the bingo from each others. Therefore, the effect that the rising of payout rate is reduced can be performed, if the privilege having a bigger affection on a direction of heightening the payout rate is disposed on a line having a low probability to establish the bingo, and the privilege having a smaller affection on a direction of heightening the payout rate is disposed on a line having a low probability to establish the bingo.

[0073] The present invention is not limited to a configuration of the above game machine where the station units ST, the satellite units SA, and the center unit CN are combined. For example, a game machine can be employed to the present invention, where a single physical lottery system and a single station unit ST are combined, or where a physical lottery system is installed into a single station unit ST. The game machine is not limited to the one where a delivery of amusement value to a player is realized by delivering actually amusement me-

dia, but also a game machine can be employed where a delivery of amusement value is realized by utilizing virtual amusement media.

Claims

1. A game machine comprising:

a physical lottery system for selecting at least one option from a plurality of options by utilizing physical motions of a medium for lottery; and
a game execution device for executing a predetermined game in association with a lottery result of the physical lottery system, and delivering to a player, amusement value, the amount of which depends on a result of the game, wherein the game machine further comprising:

a probability calculation device for calculating a probability to select each option based on a lottery result within a predetermine sampling period; and
a payout rate control device for controlling a payout rate of the amusement value in the game in reference to the probability calculated by the probability calculation device.

2. The game machine according to claim 1, wherein
The game execution device is configured so that a pattern arrangement area is generated virtually, where a plurality of patterns are arranged in a predetermined alignment, each of the plurality of patterns corresponding to each of the plurality of options in the physical lottery system, and in a case that a predetermined win arrangement is formed by the plurality of patterns in the pattern arrangement area, each of the plurality of patterns corresponds to each of the plurality of options selected through plural lotteries in the lottery system, the amusement value is delivered to the player.

3. The game machine according to claim 2, wherein
the payout rate control device controls the payout rate by changing the alignment of patterns in the pattern arrangement area based on the calculated probability.

4. The game machine according to claim 3, wherein
the payout rate control device changes the alignment of the patterns so that a difference between an actual value of the payout rate and a target value of the payout rate is reduced.

5. The game machine according to claim 1, wherein
the game execution device virtually generates as the pattern arrangement area, a bingo card where the patterns are aligned in a matrix shape, in which the number of patterns in a longitudinal direction is the same number of patterns in a lateral direction, and in a case that all patterns on any one of lines in the longitudinal direction, the lateral direction, or a diagonal direction correspond to the options selected by the physical lottery system, it is recognized that the win arrangement has been formed and the delivery of the amusement value is executed.

6. The game machine according to claim 5, wherein
the payout rate control device controls the payout rate, in a case that the win arrangement has been formed, by changing the arrangement of patterns included in the win arrangement based on the probability calculated by the probability calculation device as to each of the options corresponding to the patterns included in the win arrangement.

7. The game machine according to claim 6, wherein
the payout rate control device, in a case that the actual value of the payout rate is lower than the target value of the payout rate, changes the arrangement of patterns so that the pattern corresponding to the option the win probability of which is relatively higher is arranged at a center of the win arrangement, and in a case that the actual value of the payout rate is higher than the target value of the payout rate, changes the arrangement of patterns so that the pattern corresponding to the option the win probability of which is relatively lower is arranged at a center of the win arrangement.

FIG. 1

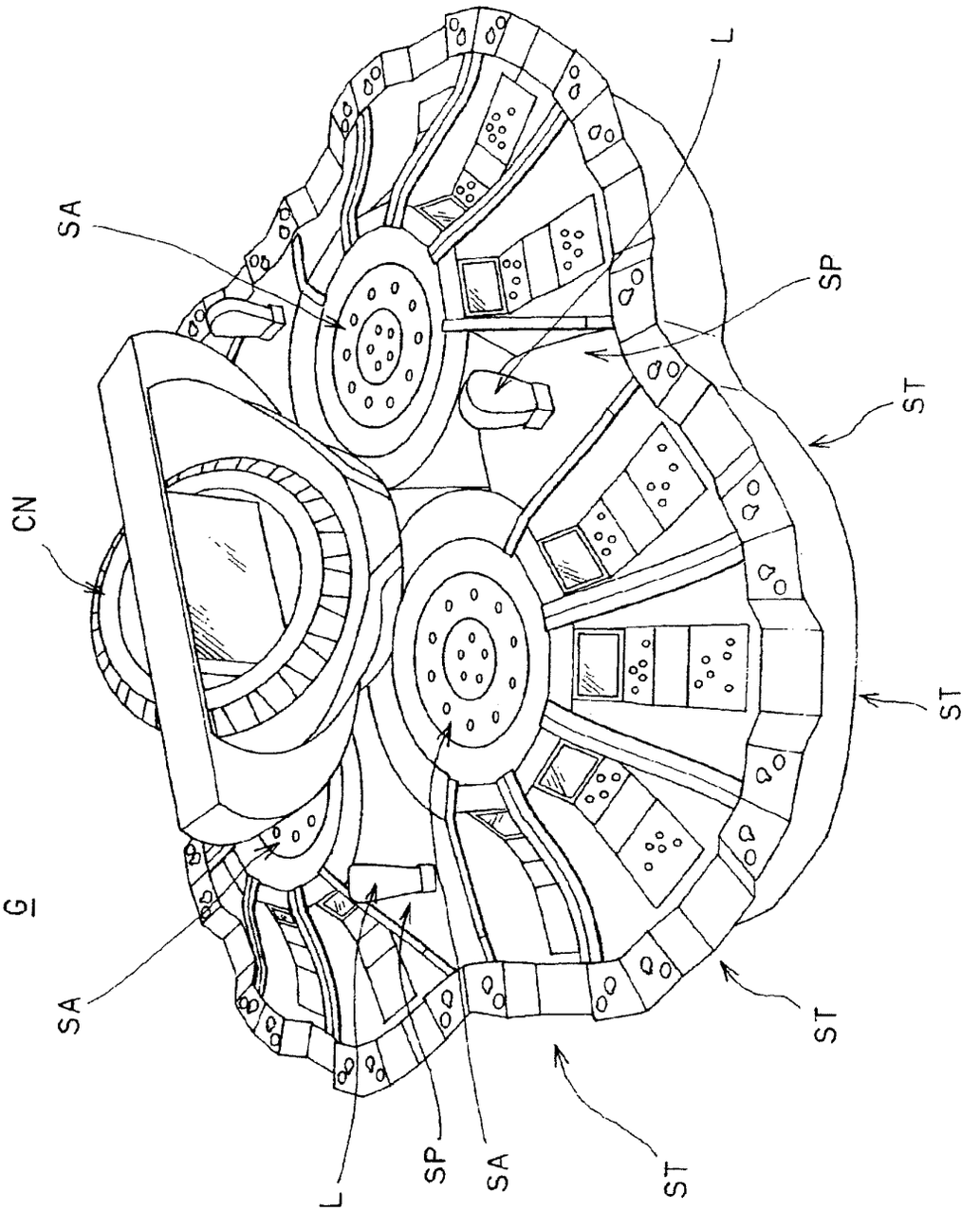


FIG. 2

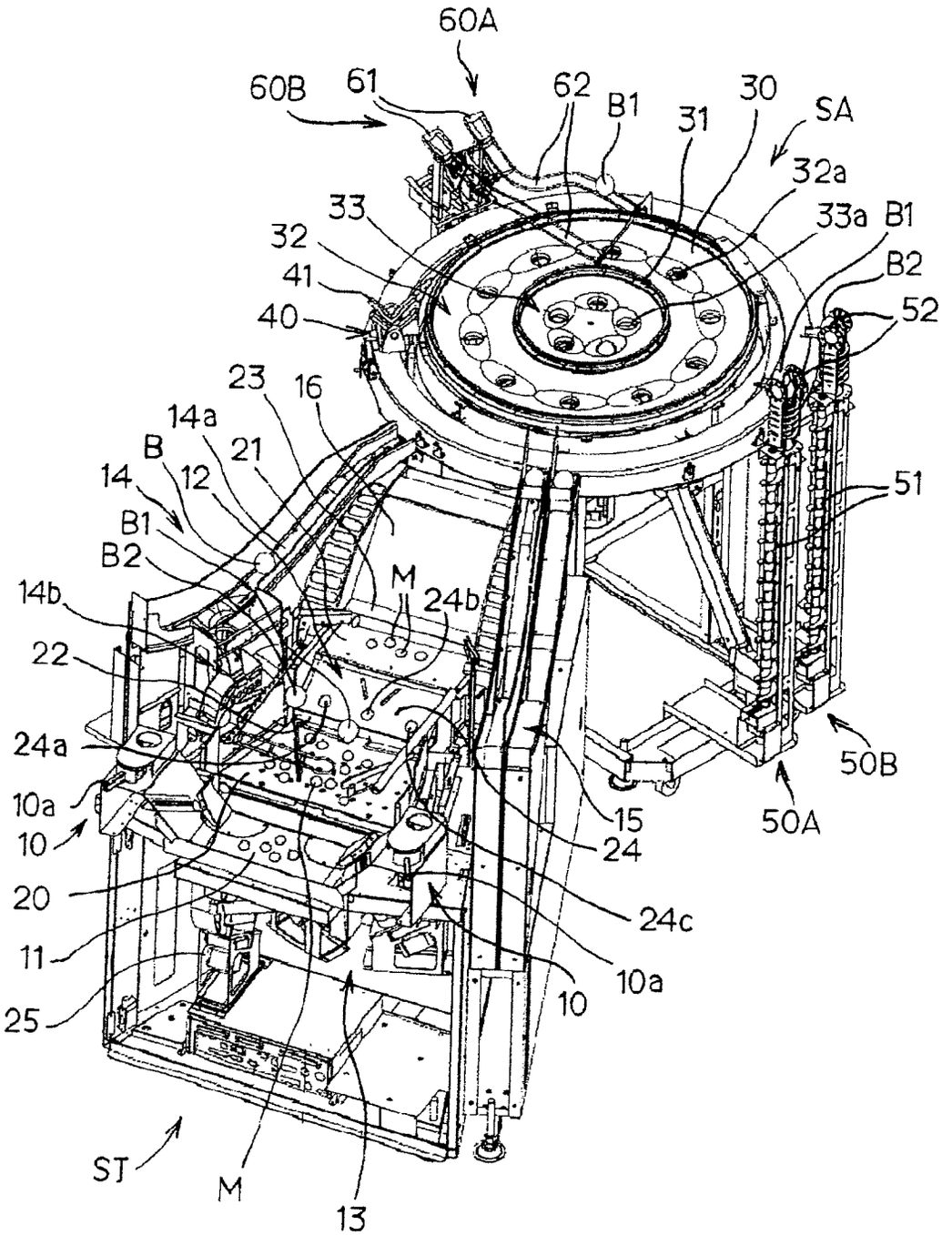

60A
60B
61
62
B1
31
30
SA
32a
33
33a
B1
32
B2
41
52
40
23
16
14a
B
21
14
12
51
B1
B2
M
24b
14b
22
24a
50B
10a
15
50A
10
24
20
24c
11
10a
10
25
ST
M
13

FIG. 3

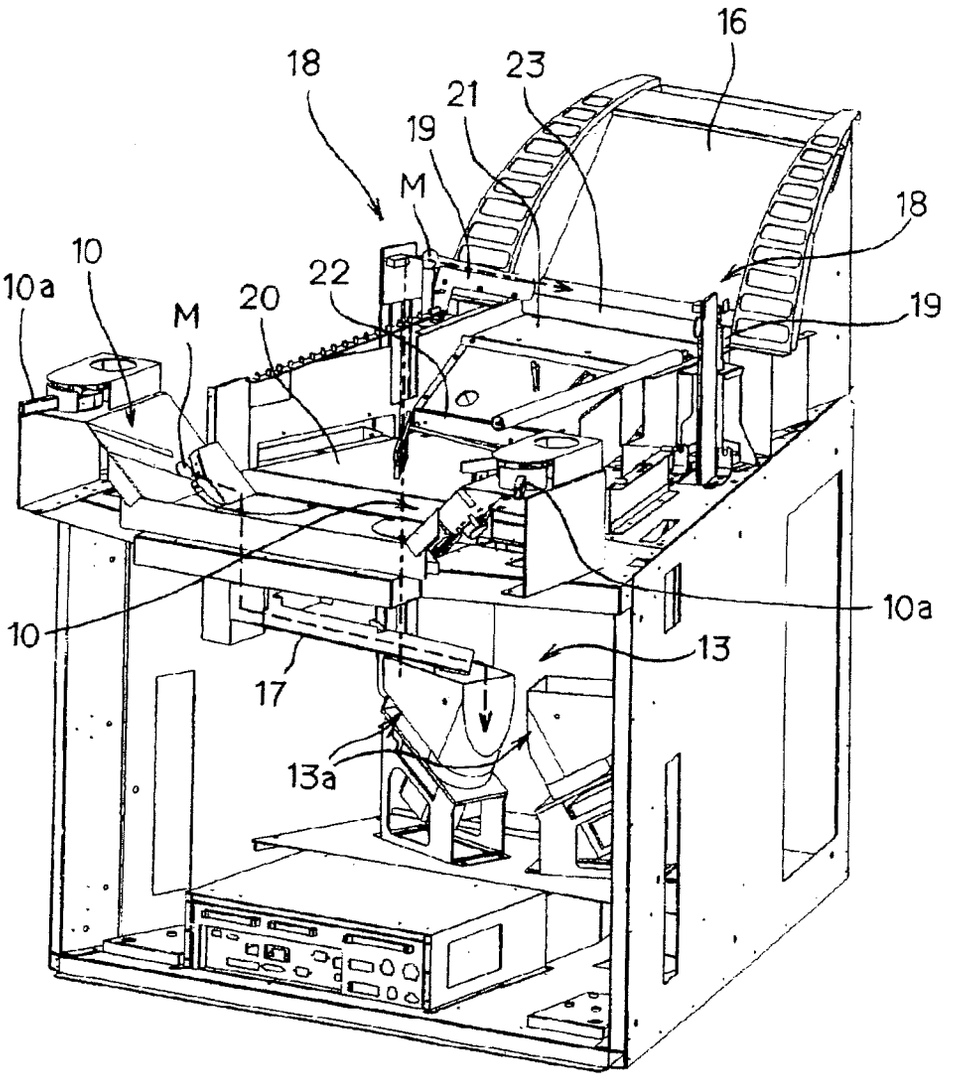


FIG. 4

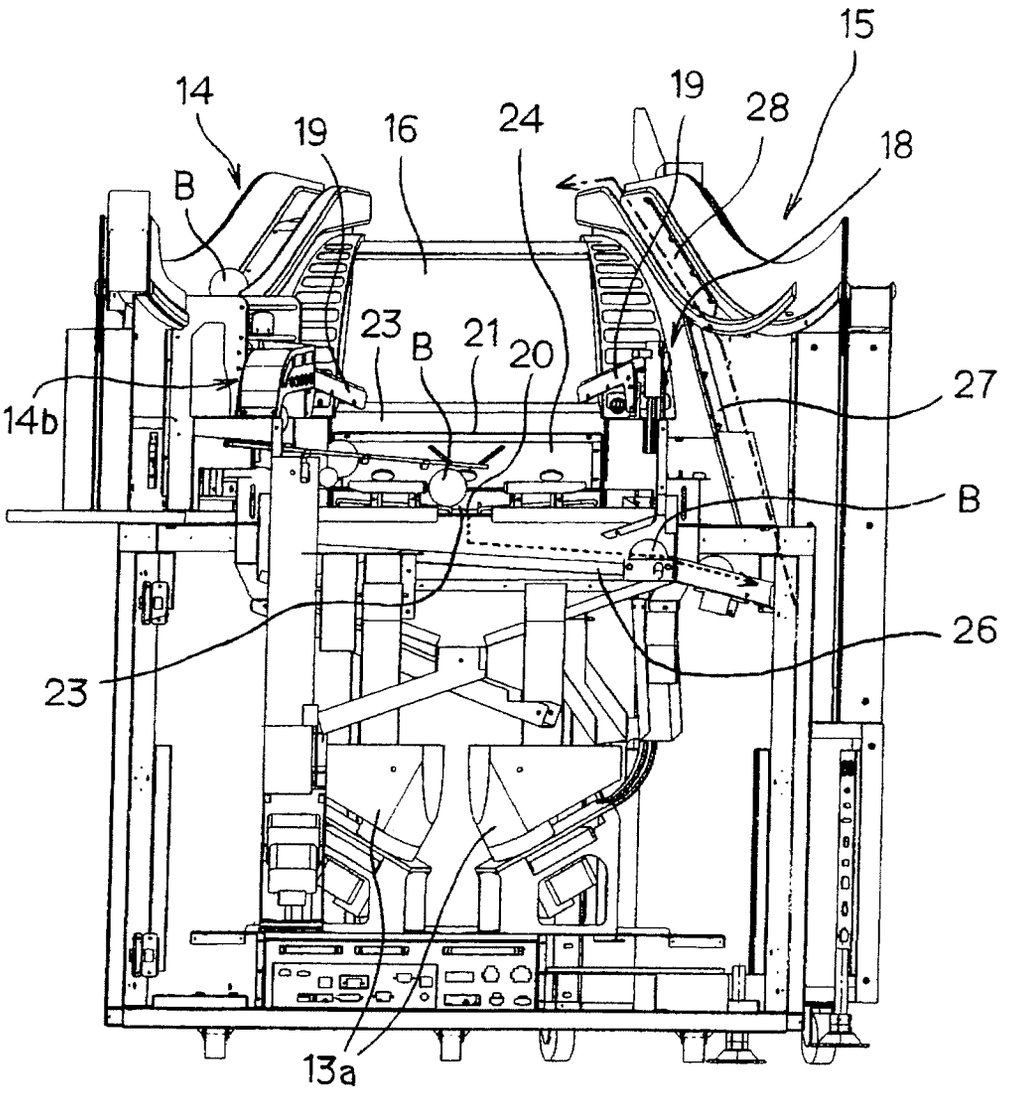


FIG. 5

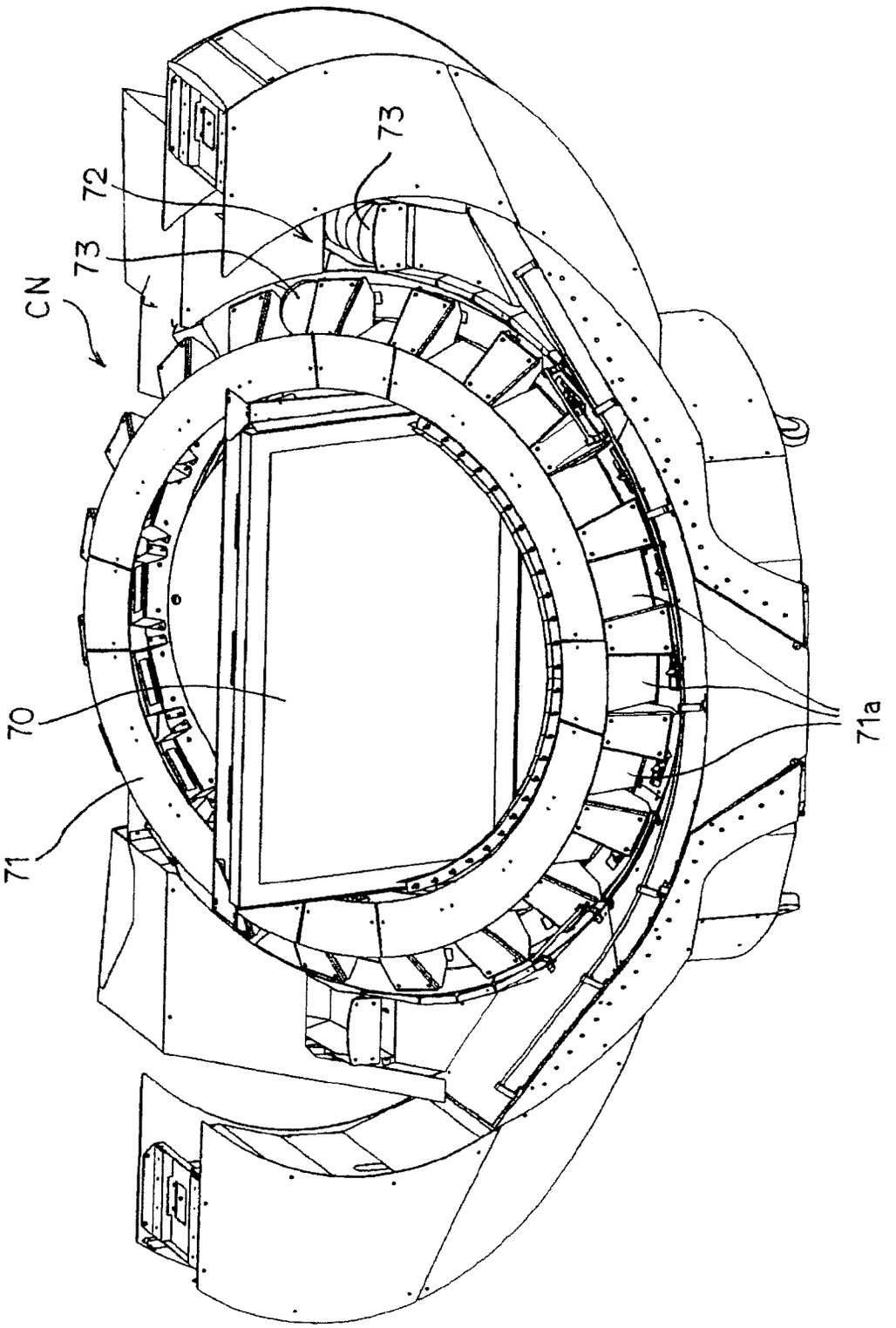


FIG. 6

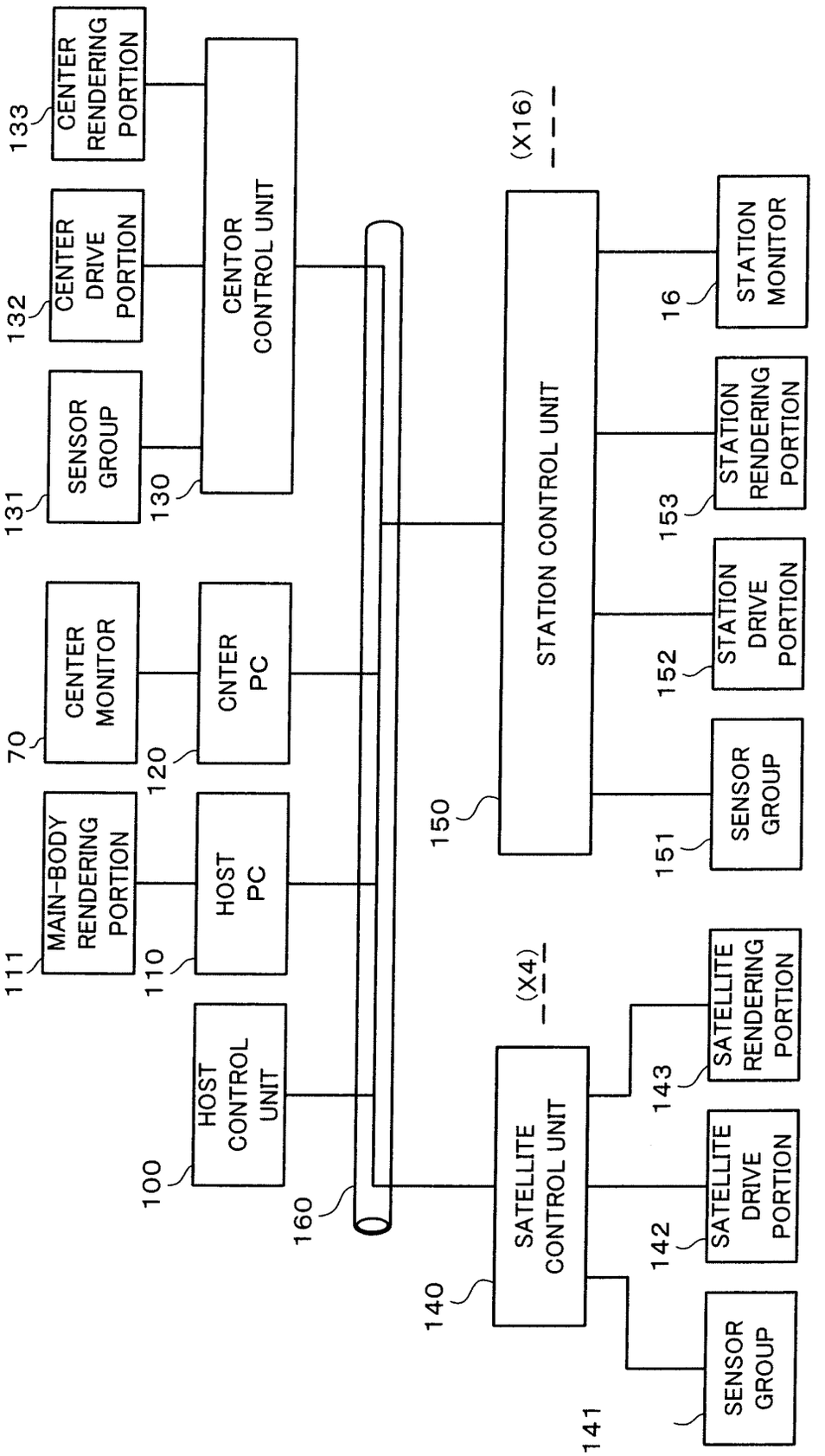

CENTER RENDERING PORTION
133
CENTER DRIVE PORTION
132
SENSOR GROUP
131
CENTOR CONTROL UNIT
130
CENTER MONITOR
70
CNTER PC
120
MAIN-BODY RENDERING PORTION
111
HOST PC
110
HOST CONTROL UNIT
100
160
(X4)
SATELLITE CONTROL UNIT
140
SATELLITE RENDERING PORTION
143
SATELLITE DRIVE PORTION
142
SENSOR GROUP
141
150
(X16)
STATION CONTROL UNIT
STATION MONITOR
16
STATION RENDERING PORTION
153
STATION DRIVE PORTION
152
SENSOR GROUP
151

FIG. 7

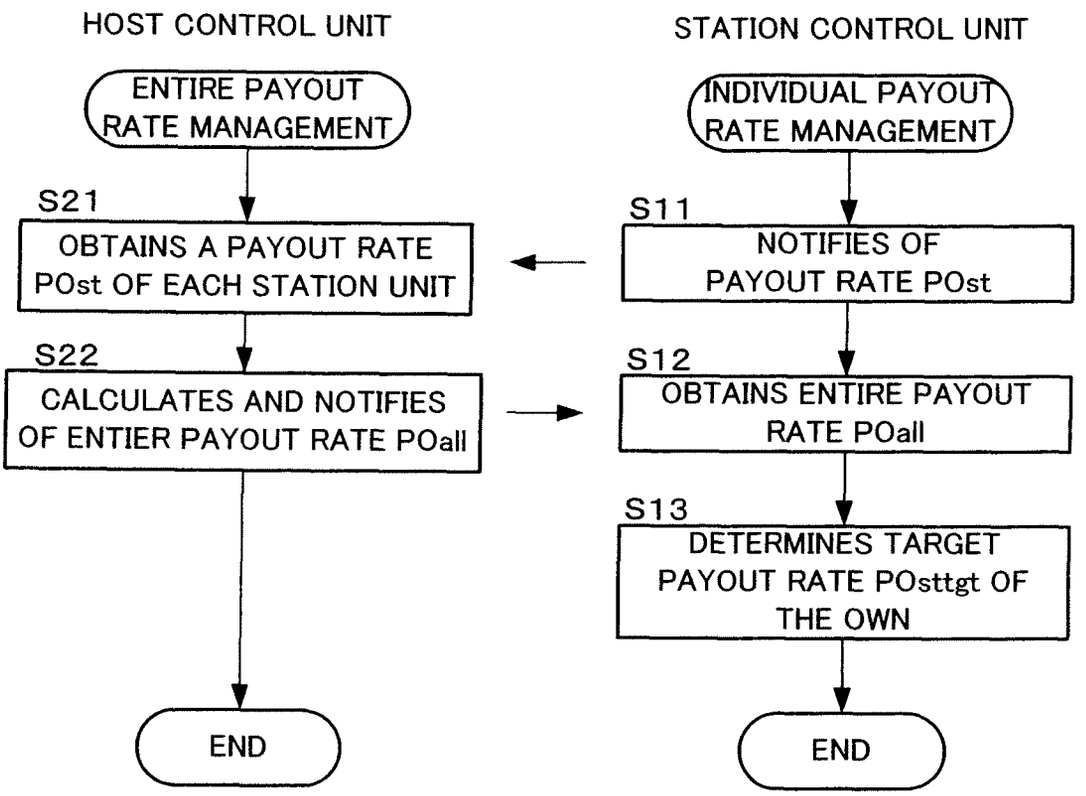

HOST CONTROL UNIT
STATION CONTROL UNIT
ENTIRE PAYOUT RATE MANAGEMENT
INDIVIDUAL PAYOUT RATE MANAGEMENT
S21
OBTAINS A PAYOUT RATE POst OF EACH STATION UNIT
S11
NOTIFIES OF PAYOUT RATE POst
S22
CALCULATES AND NOTIFIES OF ENTIER PAYOUT RATE POall
S12
OBTAINS ENTIRE PAYOUT RATE POall
S13
DETERMINES TARGET PAYOUT RATE POsttgt OF THE OWN
END
END

FIG. 8

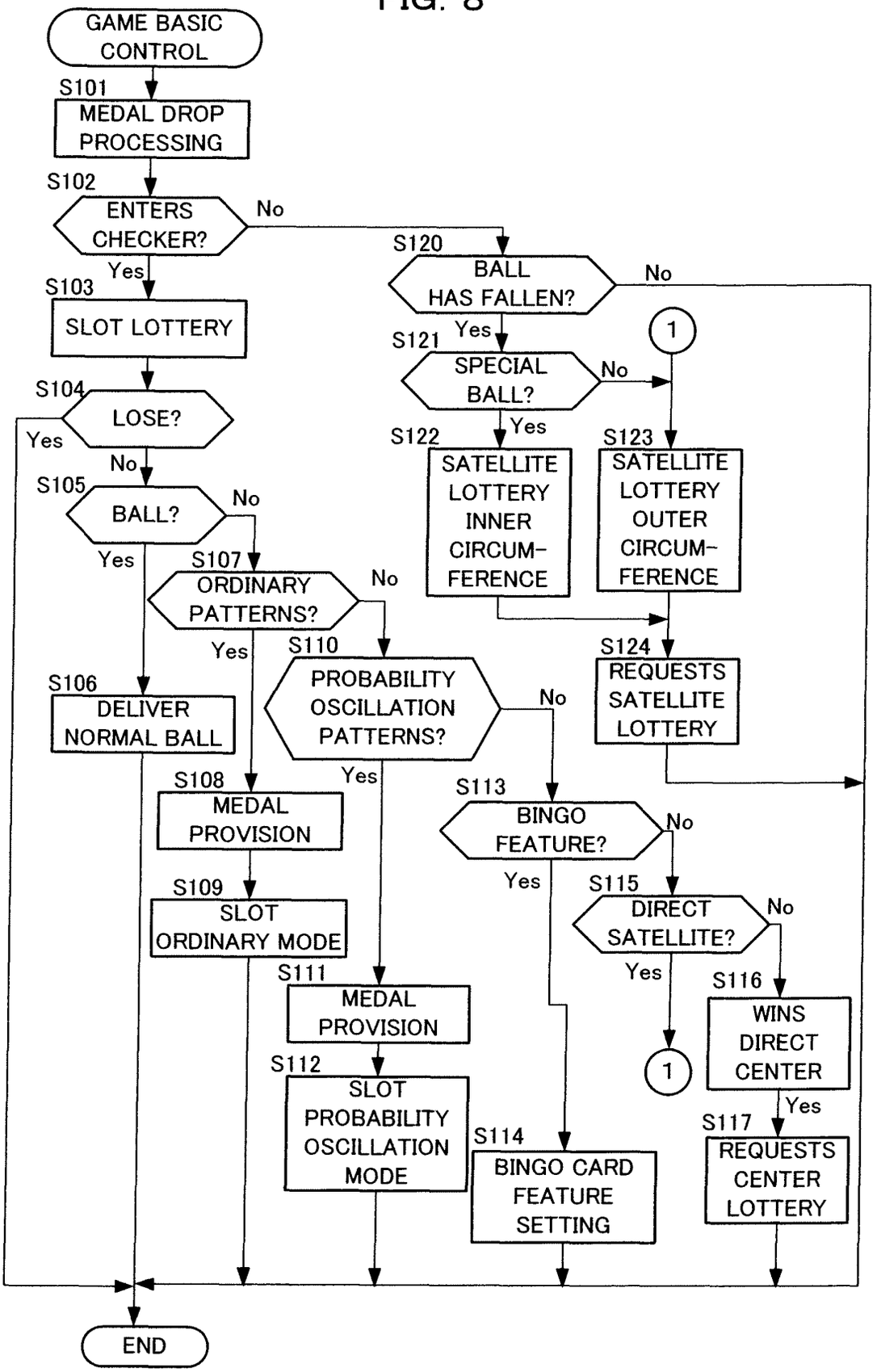

GAME BASIC CONTROL
S101
MEDAL DROP PROCESSING
S102
ENTERS CHECKER?
No
Yes
S103
SLOT LOTTERY
S104
LOSE?
Yes
No
S105
BALL?
No
Yes
S107
ORDINARY PATTERNS?
No
Yes
S106
DELIVER NORMAL BALL
S110
PROBABILITY OSCILLATION PATTERNS?
No
Yes
S108
MEDAL PROVISION
S109
SLOT ORDINARY MODE
S111
MEDAL PROVISION
S112
SLOT PROBABILITY OSCILLATION MODE
S120
BALL HAS FALLEN?
No
Yes
S121
SPECIAL BALL?
No
Yes
1
S122
SATELLITE LOTTERY INNER CIRCUM-FERENCE
S123
SATELLITE LOTTERY OUTER CIRCUM-FERENCE
S124
REQUESTS SATELLITE LOTTERY
S113
BINGO FEATURE?
No
Yes
S114
BINGO CARD FEATURE SETTING
S115
DIRECT SATELLITE?
No
Yes
1
S116
WINS DIRECT CENTER
Yes
S117
REQUESTS CENTER LOTTERY
END

FIG. 9

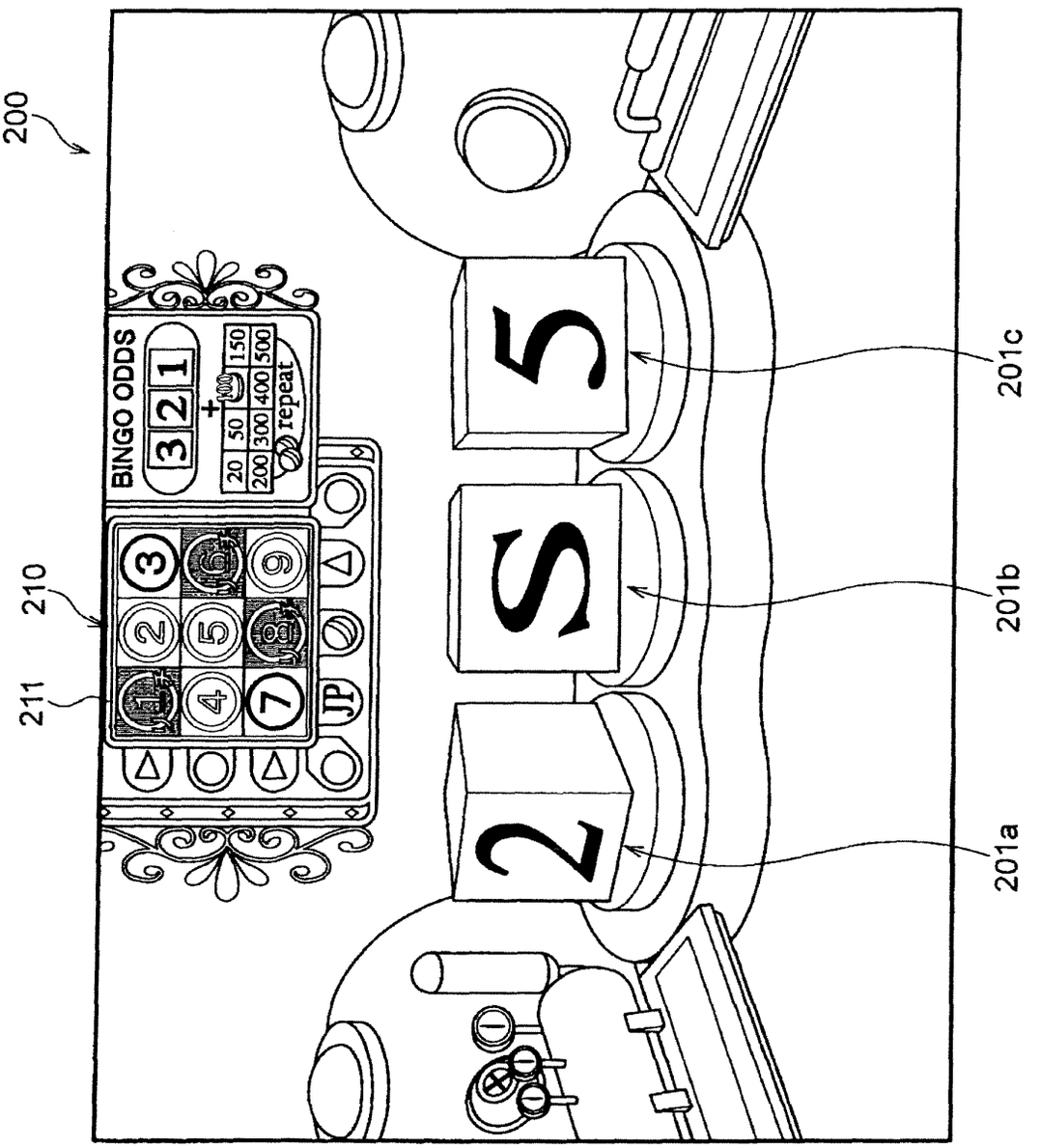

200
210
211
BINGO ODDS
3 2 1
20 50 100 150
200 300 400 500
repeat
JP
2
5
5
201a
201b
201c

FIG. 10

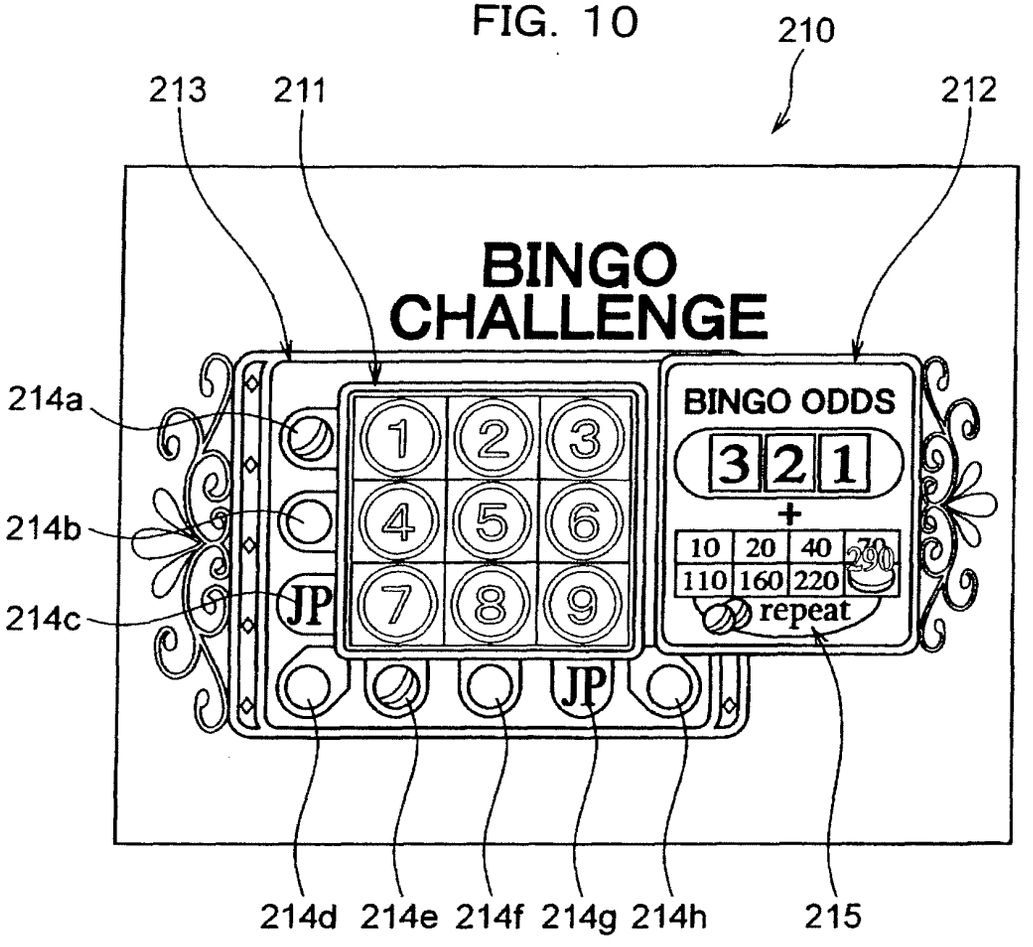

210
213
211
212
BINGO
CHALLENGE
BINGO ODDS
3 2 1
+
10 20 40 70
110 160 220 290
repeat
1 2 3
4 5 6
7 8 9
JP
JP
214a
214b
214c
214d 214e 214f 214g 214h
215

FIG. 11

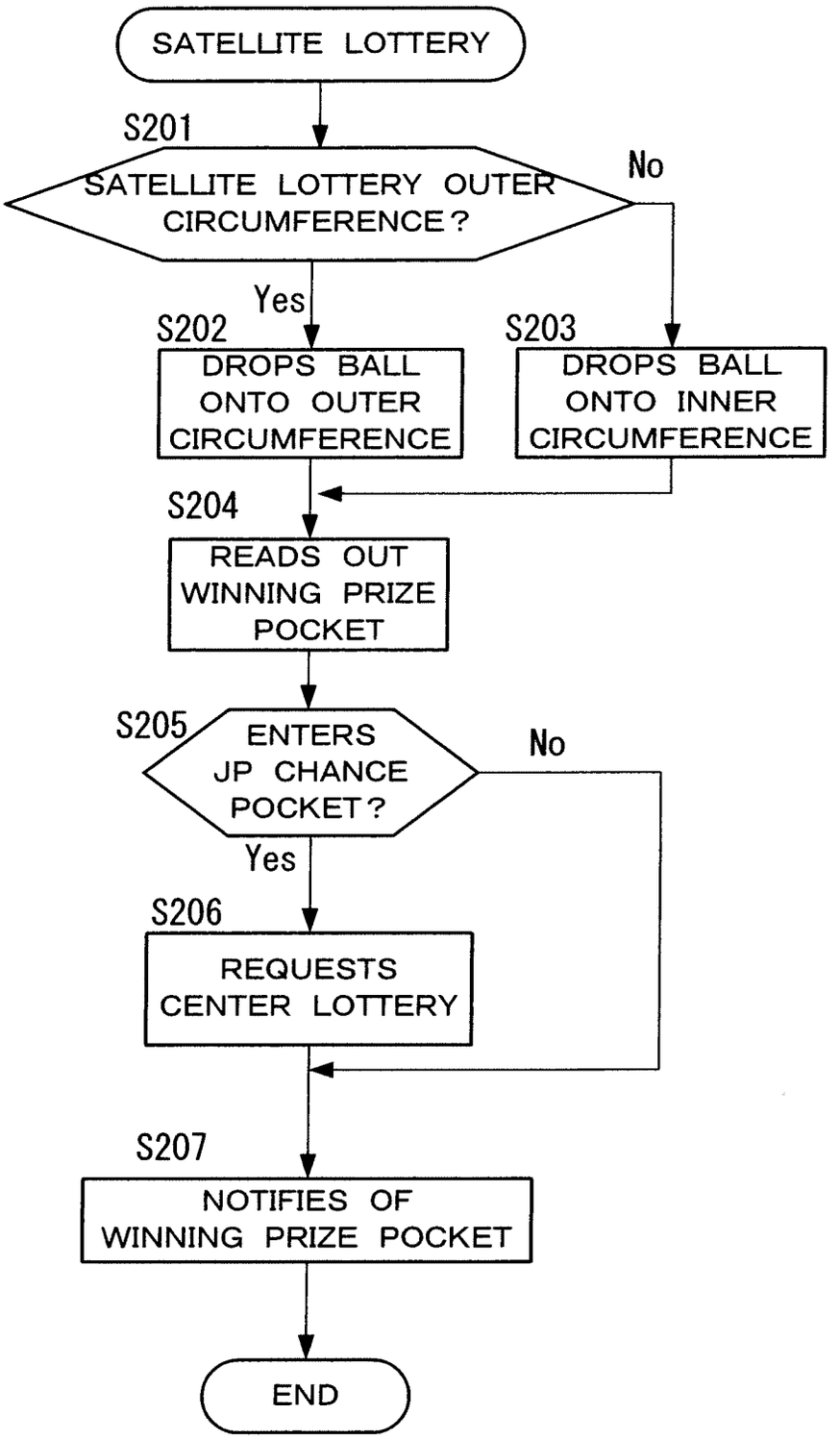

SATELLITE LOTTERY
S201
SATELLITE LOTTERY OUTER CIRCUMFERENCE?
No
Yes
S202
DROPS BALL ONTO OUTER CIRCUMFERENCE
S203
DROPS BALL ONTO INNER CIRCUMFERENCE
S204
READS OUT WINNING PRIZE POCKET
S205
ENTERS JP CHANCE POCKET?
No
Yes
S206
REQUESTS CENTER LOTTERY
S207
NOTIFIES OF WINNING PRIZE POCKET
END

FIG. 12

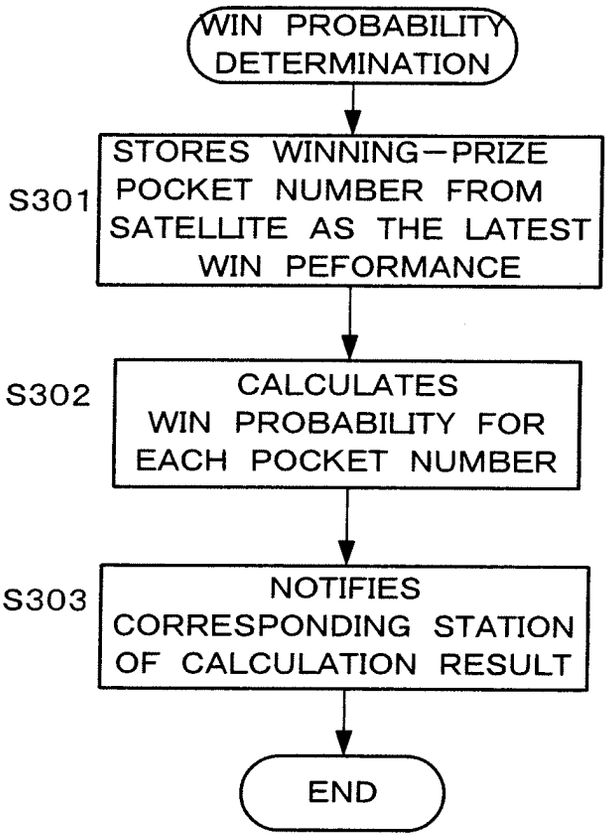


FIG. 13

POCKET NUMBER 1	THE NUMBER OF WINS N1
POKCET NUMBER 2	THE NUMBER OF WINS N2
POCKET NUMBER 3	THE NUMBER OF WINS N3
POCKET NUMBER 4	THE NUMBER OF WINS N4
POCKET NUMBER 5	THE NUMBER OF WINS N5
POCKET NUMBER 6	THE NUMBER OF WINS N6
POCKET NUMBER 7	THE NUMBER OF WINS N7
POCKET NUMBER 8	THE NUMBER OF WINS N8
POCKET NUMBER 9	THE NUMBER OF WINS N9
POCKET NUMBER JP	THE NUMBER OF WINS Njp

FIG. 14

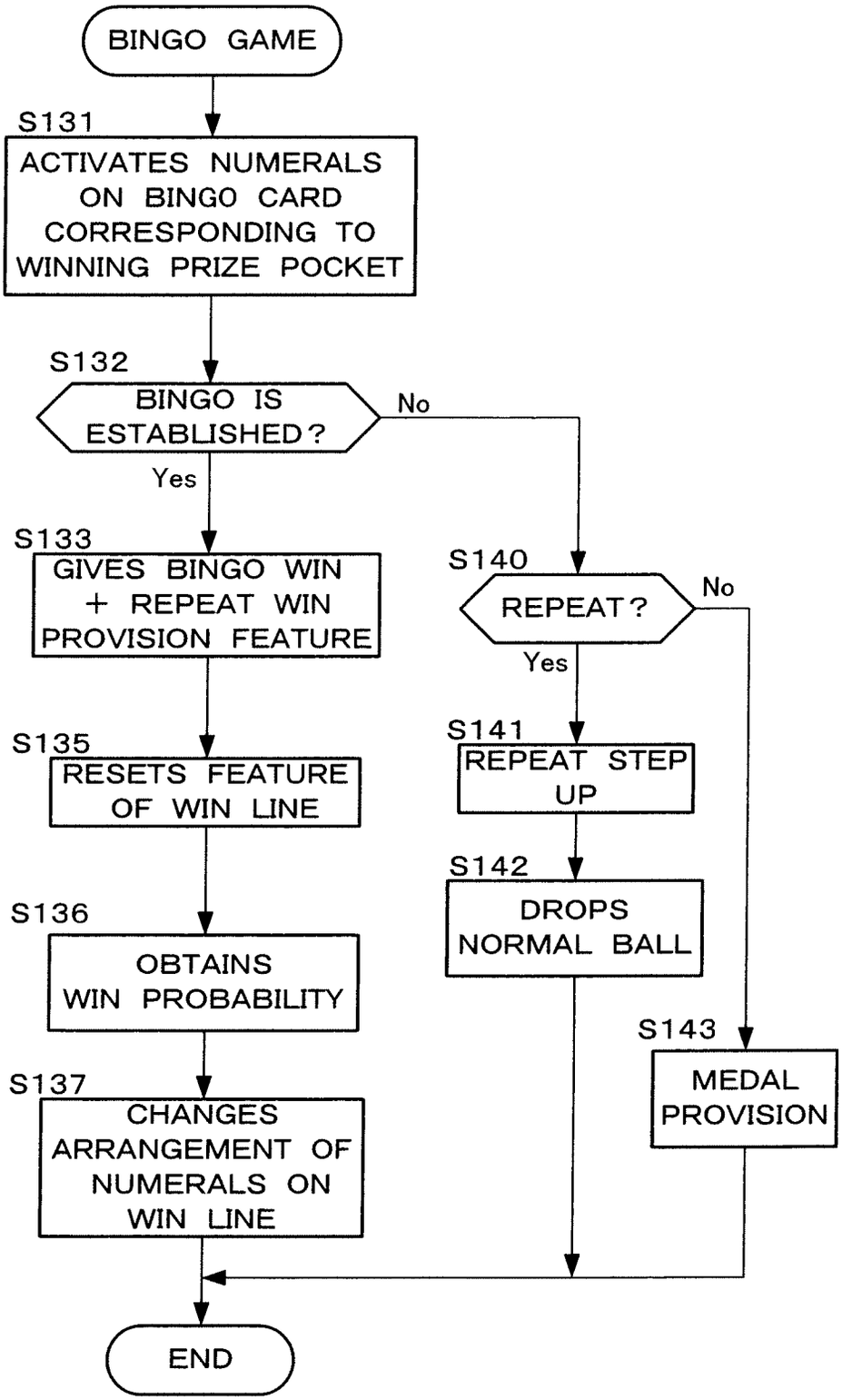

BINGO GAME
S131
ACTIVATES NUMERALS ON BINGO CARD CORRESPONDING TO WINNING PRIZE POCKET
S132
BINGO IS ESTABLISHED?
No
Yes
S133
GIVES BINGO WIN + REPEAT WIN PROVISION FEATURE
S135
RESETS FEATURE OF WIN LINE
S136
OBTAINS WIN PROBABILITY
S137
CHANGES ARRANGEMENT OF NUMERALS ON WIN LINE
S140
REPEAT?
No
Yes
S141
REPEAT STEP UP
S142
DROPS NORMAL BALL
S143
MEDAL PROVISION
END

FIG. 15

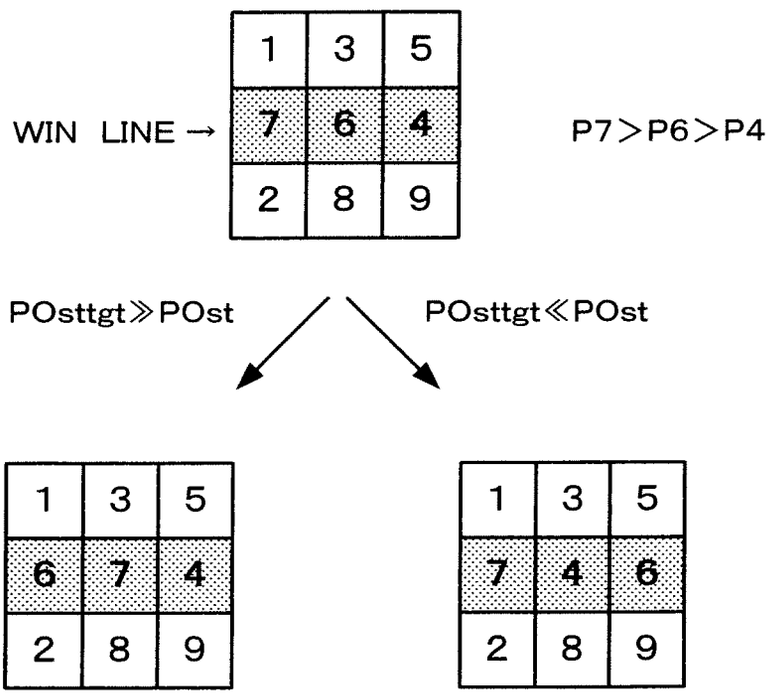

WIN LINE →
1
3
5
7
6
4
2
8
9
P7>P6>P4
POsttgt≫POst
POsttgt≪POst
1
3
5
6
7
4
2
8
9
1
3
5
7
4
6
2
8
9

FIG. 16

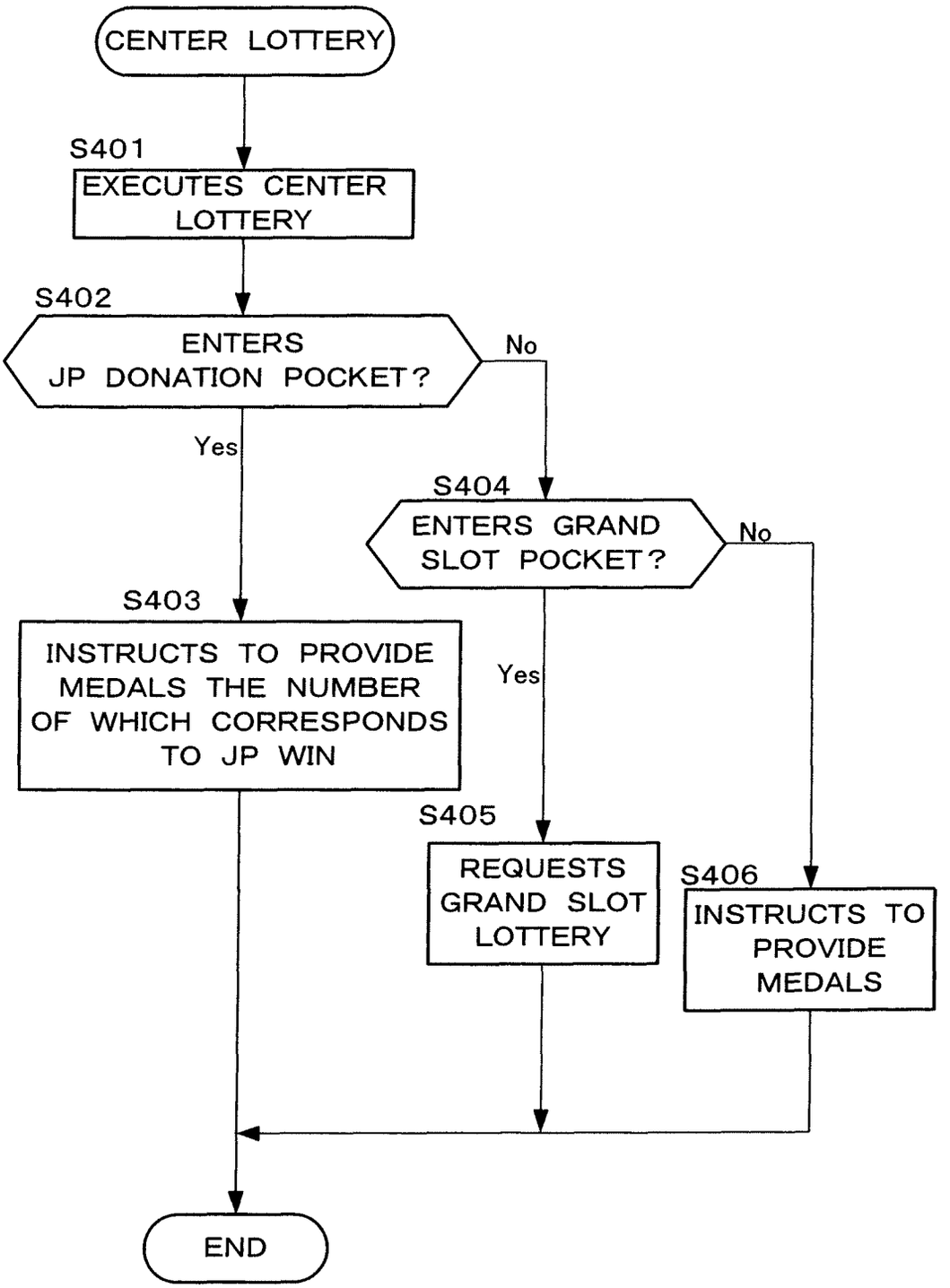

CENTER LOTTERY
S401
EXECUTES CENTER LOTTERY
S402
ENTERS JP DONATION POCKET?
No
Yes
S404
ENTERS GRAND SLOT POCKET?
No
S403
INSTRUCTS TO PROVIDE MEDALS THE NUMBER OF WHICH CORRESPONDS TO JP WIN
Yes
S405
REQUESTS GRAND SLOT LOTTERY
S406
INSTRUCTS TO PROVIDE MEDALS
END

FIG. 17

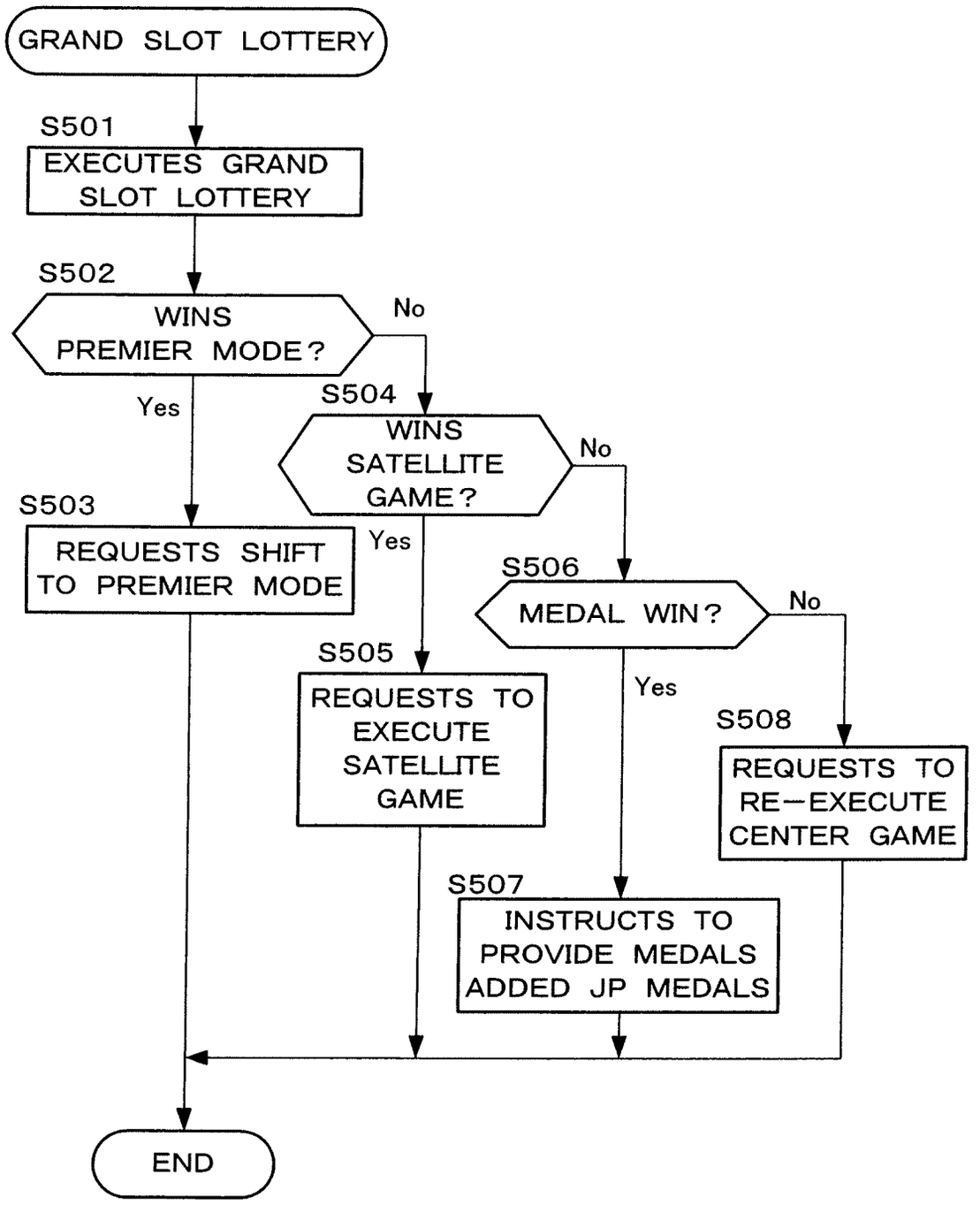

GRAND SLOT LOTTERY
S501
EXECUTES GRAND SLOT LOTTERY
S502
WINS PREMIER MODE?
No
Yes
S504
WINS SATELLITE GAME?
No
S503
REQUESTS SHIFT TO PREMIER MODE
Yes
S506
MEDAL WIN?
No
S505
REQUESTS TO EXECUTE SATELLITE GAME
Yes
S508
REQUESTS TO RE-EXECUTE CENTER GAME
S507
INSTRUCTS TO PROVIDE MEDALS ADDED JP MEDALS
END

FIG. 18

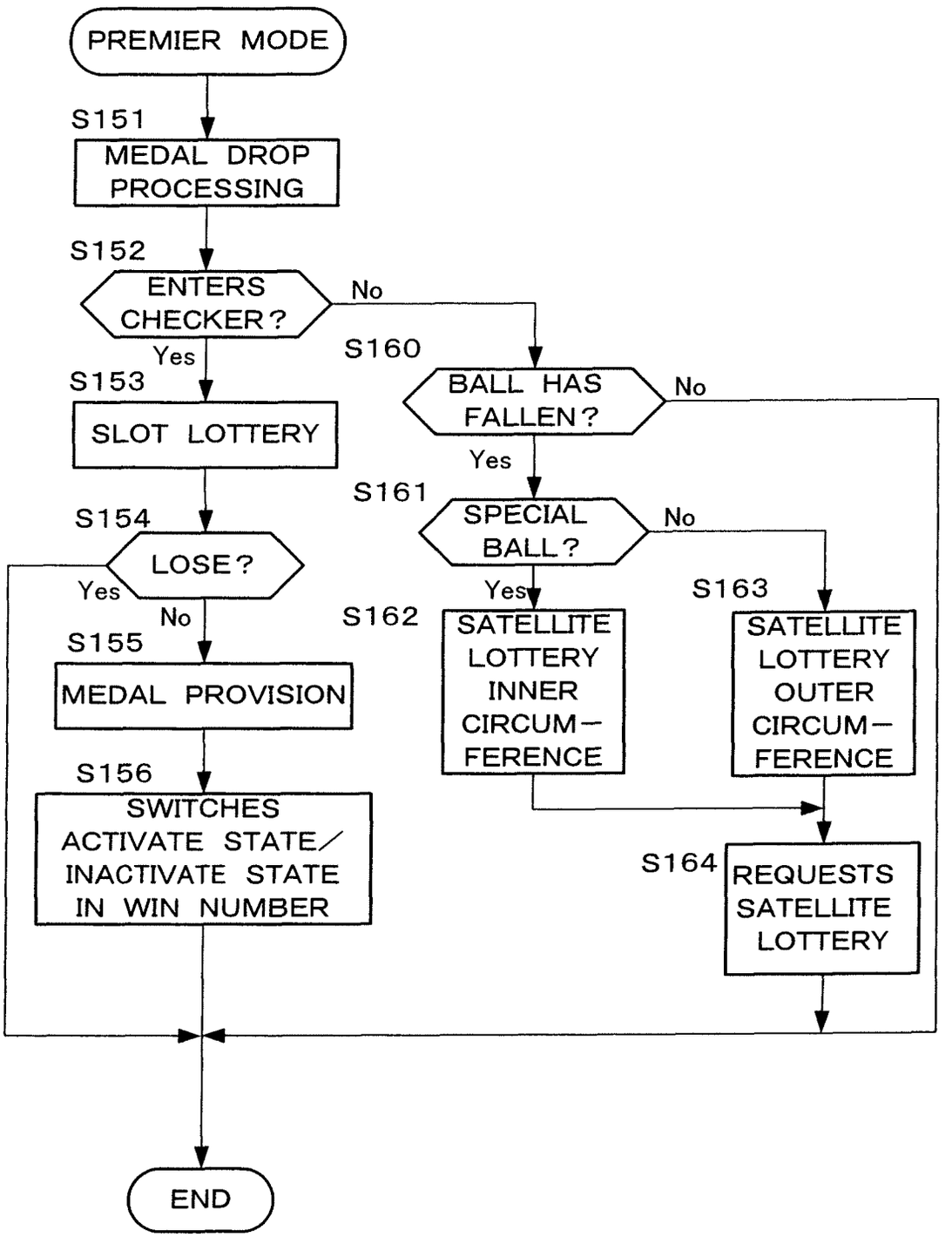

PREMIER MODE
S151
MEDAL DROP PROCESSING
S152
ENTERS CHECKER?
No
Yes
S153
SLOT LOTTERY
S154
LOSE?
Yes
No
S155
MEDAL PROVISION
S156
SWITCHES ACTIVATE STATE/ INACTIVATE STATE IN WIN NUMBER
S160
BALL HAS FALLEN?
No
Yes
S161
SPECIAL BALL?
No
Yes
S162
SATELLITE LOTTERY INNER CIRCUM-FERENCE
S163
SATELLITE LOTTERY OUTER CIRCUM-FERENCE
S164
REQUESTS SATELLITE LOTTERY
END

FIG. 19

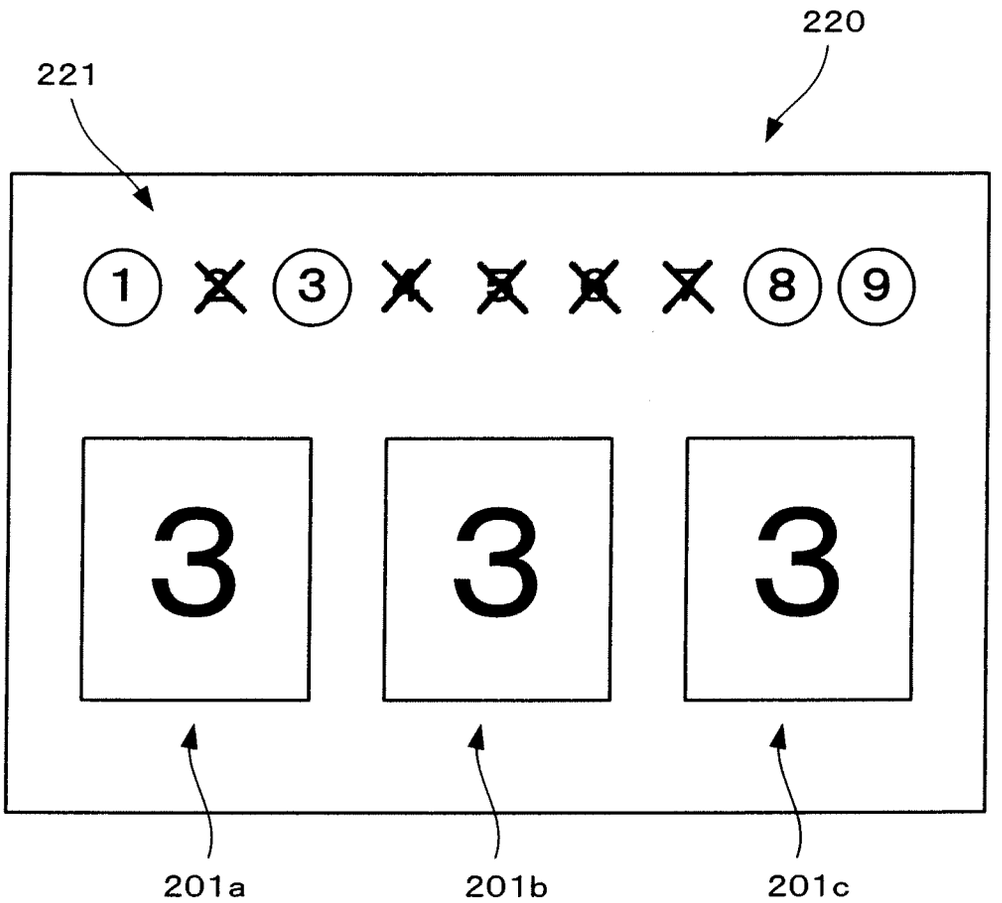
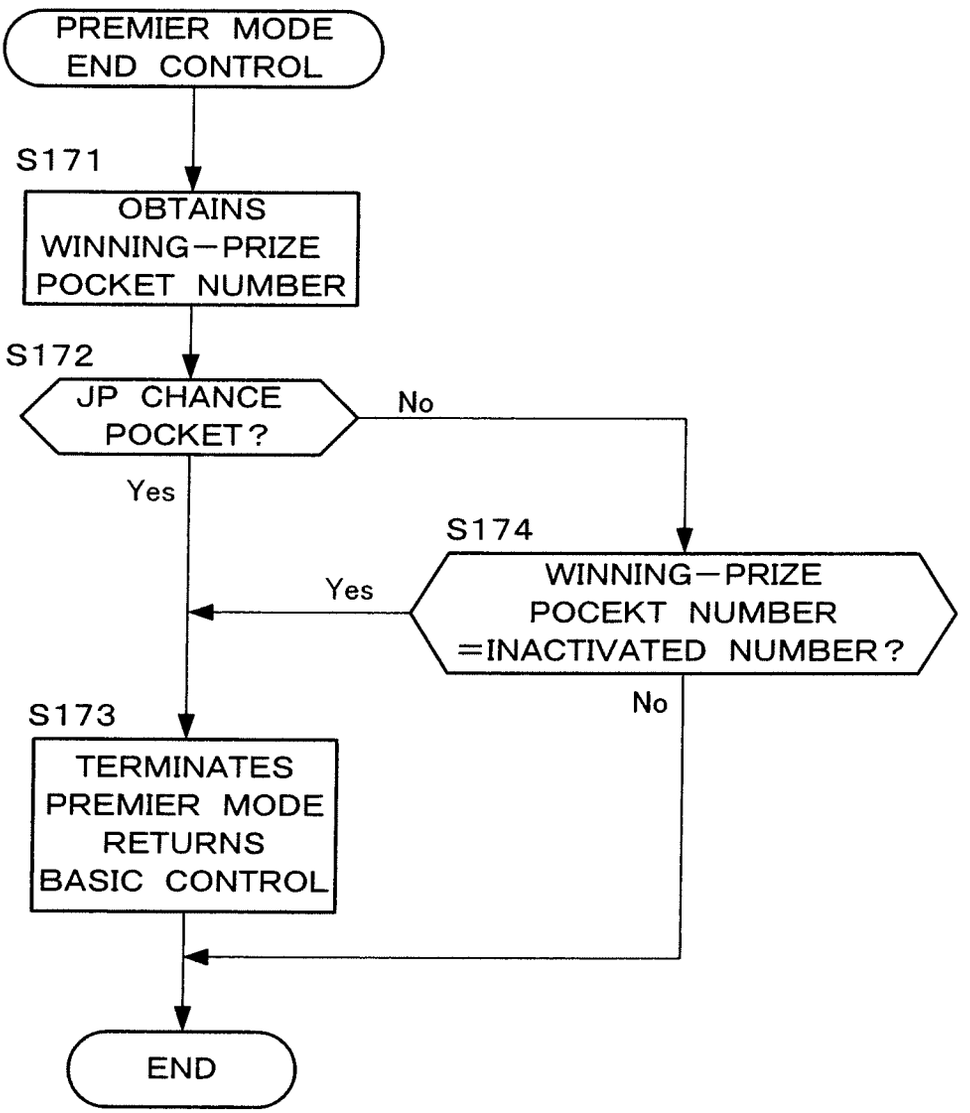


FIG. 20


PREMIER MODE END CONTROL
S171
OBTAINS WINNING-PRIZE POCKET NUMBER
S172
JP CHANCE POCKET?
No
Yes
S174
WINNING-PRIZE POCEKT NUMBER =INACTIVATED NUMBER?
Yes
No
S173
TERMINATES PREMIER MODE RETURNS BASIC CONTROL
END

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2007/052693

A. CLASSIFICATION OF SUBJECT MATTER
A63F9/00(2006.01)i, *A63F3/06*(2006.01)i, *A63F5/02*(2006.01)i, *A63F13/00*(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A63F9/00, A63F9/24, A63F13/00-13/12, A63F3/06, A63F5/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2007
Kokai Jitsuyo Shinan Koho 1971-2007 Toroku Jitsuyo Shinan Koho 1994-2007

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 2001-46733 A (Konami Co., Ltd.), 20 February, 2001 (20.02.01), Claim 15; Par. Nos. [0058] to [0097]; Figs. 1 to 5 & CN 1308980 A & TW 504398 B & HK 1038324 A	1,2,5 3,4,6,7
Y	JP 2004-89514 A (Konami Co., Ltd.), 25 March, 2004 (25.03.04), Par. Nos. [0007] to [0008], [0018] to [0027]; Figs. 1 to 5 & TW 584571 B	3,4,6,7
A	JP 6-218089 A (Taito Corp.), 09 August, 1994 (09.08.94), Par. No. [0017]; Fig. 4 (Family: none)	1-7

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
08 March, 2007 (08.03.07)	20 March, 2007 (20.03.07)
Name and mailing address of the ISA/ Japanese Patent Office Facsimile No.	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2007/052693

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2004-49417 A (Aruze Corp.), 19 February, 2004 (19.02.04), Par. Nos. [0130] to [0139] & US 2004/0072605 A1 & EP 1385130 A2	1-7
A	JP 2005-305030 A (Sanyu Inc.), 04 November, 2005 (04.11.05), Par. Nos. [0052] to [0054] (Family: none)	1-7
A	JP 2002-17943 A (Kabushiki Kaisha Matsui Gaming Machine), 22 January, 2002 (22.01.02), Full text; all drawings (Family: none)	1-7

Form PCT/ISA/210 (continuation of second sheet) (April 2005)