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## (57)

## ABSTRACT

Disclosed is a gaming machine. The gaming machine is provided with first symbol determining unit for determining a combination of symbols to be displayed in a predetermined area, based on an internal winning combination and second symbol determining unit for determining a combination of symbols to be displayed in an area different from the predetermined area, based on an internal winning combination. Further, the gaming machine is provided with reel stop unit for stopping rotation of the reels, based on the combination of symbols determined by the first symbol determining unit and the combination of symbols determined by the second symbol determining unit and winning determining unit for determining whether a winning is established or not, based on the combination of symbols displayed in the predetermined area, among a plurality of symbols displayed by the stopped reels.

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$\qquad$


FIG. 1


FIG. 2


FIG. 3

Symbol arrangement table

| Left reel |  |  | Center reel |  |  | Right reel |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Symbol position | symbol |  | Symbol position | symbol |  | Symbol position | symbol |  |
|  | contents | data |  | contents | data |  | contents | data |
| 20 | Watermelon | 00000100 | 20 | Watermelon | 00000100 | 20 | Bell | 00000101 |
| 19 | Replay | 00000110 | 19 | Cherry | 00000111 | 19 | BAR | 00000011 |
| 18 | Bell | 00000101 | 18 | Replay | 00000110 | 18 | Replay | 00000110 |
| 17 | Blank | 00001000 | 17 | Bell | 00000101 | 17 | Watermelon | 00000100 |
| 16 | Cherry | 00000111 | 16 | Cherry | 00000111 | 16 | Bell | 00000101 |
| 15 | Replay | 00000110 | 15 | Bell | 00000101 | 15 | Cherry | 00000111 |
| 14 | Bell | 00000101 | 14 | Replay | 00000110 | 14 | Replay | 00000110 |
| 13 | BAR | 00000011 | 13 | Cherry | 00000111 | 13 | Cherry | 00000111 |
| 12 | Bell | 00000101 | 12 | Watermelon | 00000100 | 12 | Bell | 00000101 |
| 11 | Replay | 00000110 | 11 | BAR | 00000011 | 11 | Blue 7 | 00000010 |
| 10 | Watermelon | 00000100 | 10 | Bell | 00000101 | 10 | Replay | 00000110 |
| 9 | Bell | 00000101 | 9 | Replay | 00000110 | 9 | Watermelon | 00000100 |
| 8 | Blank | 00001000 | 8 | Cherry | 00000111 | 8 | Bell | 00000101 |
| 7 | Cherry | 00000111 | 7 | Blue 7 | 00000010 | 7 | Blank | 00001000 |
| 6 | Replay | 00000110 | 6 | Bell | 00000101 | 6 | Cherry | 00000111 |
| 5 | Bell | 00000101 | 5 | Replay | 00000110 | 5 | Replay | 00000110 |
| 4 | Watermelon | 00000100 | 4 | Blank | 00001000 | 4 | Watermelon | 00000100 |
| 3 | Replay | 00000110 | 3 | Watermelon | 00000100 | 3 | Bell | 00000101 |
| 2 | Blue 7 | 00000010 | 2 | Replay | 00000110 | 2 | Cherry | 00000111 |
| 1 | Bell | 00000101 | 1 | Bell | 00000110 | 1 | Replay | 00000110 |
| 0 | Red 7 | 00000001 | 0 | Red 7 | 00000001 | 0 | Red 7 | 00000001 |

FIG. 5

Internal lottery table determining table

| gaming state | type | number of <br> lotteries |
| :---: | :---: | :---: |
| normal gaming state | internal lottery table for normal gaming <br> state | 7 |
| RB gaming state | internal lottery table for RB gaming <br> state | 3 |

FIG. 6A
internal lottery table for normal gaming state

| winning <br> number | insertion number : 1 |  | insertion number : 2 |  | insertion number:3 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | lowest limit | upper limit | lowest limit | upper limit | lowest limit | upper limit |
| 1 | 0 | 0 | 0 | 0 | 0 | 599 |
| 2 | 28 | 2027 | 118 | 3117 | 2185 | 7883 |
| 3 | 28 | 28 | 118 | 118 | 1785 | 2184 |
| 4 | 2027 | 11006 | 3117 | 12096 | 7883 | 16862 |
| 5 | 28 | 30 | 28 | 37 | 2185 | 2284 |
| 6 | 1 | 10 | 1 | 40 | 579 | 678 |
| 7 | 19 | 28 | 79 | 118 | 1730 | 1829 |

FIG. 6B
internal lottery table for RB gaming state

| winning <br> number | insertion number : 1 |  |
| :---: | :---: | :---: |
|  | lowest limit | upper limit |
| 1 | 0 | 0 |
| 2 | 28 | 65535 |
| 3 | 28 | 28 |

FIG. 7
internal winning combination determining table

| winning number | internal winning combination |  |
| :---: | :---: | :---: |
|  | data | contents |
| 0 | 00000000 | losing |
| 1 | 00000001 | Cherry |
| 2 | 00000010 | Bell |
| 3 | 000000100 | Watermelon |
| 4 | 000001000 | Replay |
| 5 | 00010000 | RB3 |
| 6 | 00100000 | RB2 |
| 7 | 01000000 | RB1 |

FIG. 8
reel stop initialization table

| flag counter | retrieval parameter table |
| :---: | :---: |
| 0 (losing) | retrieval parameter table for losing |
| 1 (Cherry) | retrieval parameter table for Cherry |
| 2 (Bell) | retrieval parameter table for Bell |
| 3 (Watermelon) | retrieval parameter table for Watermelon |
| 4 (Replay) | retrieval parameter table for Replay |
| 5 (RB3) | retrieval parameter table for RB3 |
| 6 (RB2) | retrieval parameter table RB2 |
| 7 (RB1) | retrieval parameter table RB1 |

FIG. 9
symbol combination table for stop-control

| combination of symbols |  |  | display combination |  |
| :---: | :---: | :---: | :---: | :---: |
| left reel | center reel | right reel | data | contents |
| Cherry | ANY | ANY | 00000001 | Cherry |
| Bell | Bell | Bell | 00000010 | Bell |
| BAR | BAR | BAR | 00010000 | RB3 |
| Blue 7 | Blue 7 | Blue 7 | 00100000 | RB2 |
| Red 7 | Red 7 | Red 7 | 0100000 | RB1 |

FIG. 10
priority attraction-in ranking table

| priority ranking | attraction-in data | contents |
| :---: | :---: | :---: |
| 1 | 00001000 | Replay |
| 2 | 01110000 | RB1, RB2, RB3 |
| 3 | 00000010 | Bell |
| 4 | 00000100 | Watermelon |
| 5 | 00000001 | Cherry |

FIG. 11A
retrieval parameter table for Losing

| left reel 3L |  | center reel 3C |  | right reel 3R |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| symbol position | retrieval status data | symbol position | retrieval status data | symbol position | retrieval status data |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 2 | 1 | 1 |
| 2 | 1 | 2 | 0 | 2 | 0 |
| 3 | 0 | 3 | 2 | 3 | 1 |
| 4 | 1 | 4 | 1 | 4 | 3 |
| 5 | 0 | 5 | 4 | 5 | 2 |
| 6 | 3 | 6 | 1 | 6 | 1 |
| 7 | 2 | 7 | 0 | 7 | 0 |
| 8 | 1 | 8 | 1 | 8 | 1 |
| 9 | 0 | 9 | 3 | 9 | 2 |
| 10 | 0 | 10 | 0 | 10 | 1 |
| 11 | 1 | 11 | 3 | 11 | 0 |
| 12 | 0 | 12 | 2 | 12 | 1 |
| 13 | 1 | 13 | 2 | 13 | 0 |
| 14 | 0 | 14 | 0 | 14 | 1 |
| 15 | 3 | 15 | 0 | 15 | 0 |
| 16 | 2 | 16 | 2 | 16 | 3 |
| 17 | 1 | 17 | 2 | 17 | 2 |
| 18 | 0 | 18 | 0 | 18 | 1 |
| 19 | 1 | 19 | 0 | 19 | 0 |
| 20 | 0 | 20 | 0 | 20 | 1 |

FIG. 11B
retrieval parameter table for RB1

| left reel 3L |  | center reel 3C |  | right reel 3R |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| symbol position | retrieval status data | symbol position | retrieval status data | symbol position | retrieval status data |
| 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 0 | 1 | 2 | 1 | 2 |
| 2 | 1 | 2 | 0 | 2 | 2 |
| 3 | 1 | 3 | 1 | 3 | 2 |
| 4 | 0 | 4 | 2 | 4 | 2 |
| 5 | 4 | 5 | 0 | 5 | 0 |
| 6 | 3 | 6 | 2 | 6 | 0 |
| 7 | 3 | 7 | 0 | 7 | 1 |
| 8 | 4 | 8 | 0 | 8 | 3 |
| 9 | 0 | 9 | 2 | 9 | 0 |
| 10 | 3 | 10 | 0 | 10 | 0 |
| 11 | 0 | 11 | 2 | 11 | 3 |
| 12 | 0 | 12 | 0 | 12 | 0 |
| 13 | 1 | 13 | 1 | 13 | 3 |
| 14 | 0 | 14 | 3 | 14 | 0 |
| 15 | 4 | 15 | 1 | 15 | 2 |
| 16 | 4 | 16 | 0 | 16 | 4 |
| 17 | 3 | 17 | 0 | 17 | 2 |
| 18 | 3 | 18 | 0 | 18 | 0 |
| 19 | 1 | 19 | 0 | 19 | 1 |
| 20 | 2 | 20 | 1 | 20 | 0 |

FIG. 12
retrieval order table determining table

FIG. 13
symbol combination table

| combination of symbols |  |  | display combination |  | payout number |
| :---: | :---: | :---: | :---: | :---: | :---: |
| left reel | center reel | right reel | data | contents |  |
| Cherry | ANY | ANY | 00000001 | Cherry | 4 |
| Bell | Bell | Bell | 00000010 | Bell | 10 |
| Watermelon | Watermelon | Watermelon | 00000100 | Watermelon | 8 |
| Replay | Replay | Replay | 00001000 | Replay | 0 |
| BAR | BAR | BAR | 00010000 | RB3 | 0 |
| Blue 7 | Blue 7 | Blue 7 | 00100000 | RB2 | 0 |
| Red 7 | Red 7 | Red 7 | 01000000 | RB1 | 0 |

FIG. 14
table on bonus operation

| storing area | data |
| :---: | :---: |
| flag under operation | flag under RB operation |
| possible game-number counter | 12 |
| possible winning-number counter | 8 |

FIG. 15
internal winning combination storing area

| data |  | contents |
| :---: | :---: | :---: |
| bit 7 | 0 | - |
| bit 6 | $0 \sim 1$ | RB1 |
| bit 5 | $0 \sim 1$ | RB2 |
| bit 4 | $0 \sim 1$ | RB3 |
| bit 3 | $0 \sim 1$ | Replay |
| bit 2 | $0 \sim 1$ | Watermelon |
| bit 1 | $0 \sim 1$ | Bell |
| bit 0 | $0 \sim 1$ | Cherry |

FIG. 16
internal carryover combination storing area

| data |  | contents |
| :---: | :---: | :---: |
| bit 7 | 0 | - |
| bit 6 | $0 \sim 1$ | RB1 |
| bit 5 | $0 \sim 1$ | RB2 |
| bit 4 | $0 \sim 1$ | RB3 |
| bit 3 | 0 | - |
| bit2 | 0 | - |
| bit 1 | 0 | - |
| bit 0 | 0 | - |

FIG. 17
area for storing a winning combination for reel-stop

| data |  | contents |
| :---: | :---: | :---: |
| bit 7 | 0 | - |
| bit 6 | $0 \sim 1$ | RB1 |
| bit 5 | $0 \sim 1$ | RB2 |
| bit 4 | $0 \sim 1$ | RB3 |
| bit 3 | $0 \sim 1$ | Replay |
| bit 2 | $0 \sim 1$ | Watermelon |
| bit 1 | $0 \sim 1$ | Bell |
| bit 0 | $0 \sim 1$ | Cherry |

FIG. 18
display combination storing area

| data |  | contents |
| :---: | :---: | :---: |
| bit 7 | 0 | - |
| bit 6 | $0 \sim 1$ | RB1 |
| bit 5 | $0 \sim 1$ | RB2 |
| bit 4 | $0 \sim 1$ | RB3 |
| bit 3 | $0 \sim 1$ | Replay |
| bit 2 | $0 \sim 1$ | Watermelon |
| bit 1 | $0 \sim 1$ | Bell |
| bit 0 | $0 \sim 1$ | Cherry |

FIG. 19
pseudo display combination storing area

| data |  | contents |
| :---: | :---: | :---: |
| bit 7 | 0 | - |
| bit 6 | $0 \sim 1$ | RB1 |
| bit 5 | $0 \sim 1$ | RB2 |
| bit 4 | $0 \sim 1$ | RB3 |
| bit 3 | $0 \sim 1$ | Replay |
| bit 2 | $0 \sim 1$ | Watermelon |
| bit 1 | $0 \sim 1$ | Bell |
| bit 1 | $0 \sim 1$ | Cherry |

FIG. 20
flag counter

| data | contents |
| :---: | :---: |
| 0 | losing |
| 1 | Cherry |
| 2 | Bell |
| 3 | Watermelon |
| 4 | Replay |
| 5 | RB3 |
| 6 | RB2 |
| 7 | RB1 |

FIG. 21
symbol storing area

| contents |  |  | data |
| :---: | :---: | :---: | :---: |
| center line | Left reel central part | being rotated | 01111111 |
|  |  | Blank | 00001000 |
|  |  | Cherry | 00000111 |
|  |  | Replay | 00000110 |
|  |  | Bell | 00000101 |
|  |  | Watermelon | 00000100 |
|  |  | BAR | 00000011 |
|  |  | Blue 7 | 00000010 |
|  |  | Red 7 | 00000001 |
|  | Center reel central part | same as the above |  |
|  | Right reel central part | same as the above |  |
| top line | Left reel upper part | same as the above |  |
|  | Center reel upper part | same as the above |  |
|  | Right reel upper part | same as the above |  |
| bottom line | Left reel lower part | same as the above |  |
|  | Center reel lower part | same as the above |  |
|  | Right reel lower part | same as the above |  |
| cross-down line | Left reel upper part | same as the above |  |
|  | Center reel central part | same as the above |  |
|  | Right reel lower part | same as the above |  |
| cross-up line | Left reel lower part | same as the above |  |
|  | Center reel central part | same as the above |  |
|  | Right reel upper part | same as the above |  |

FIG. 22
expected display combination storing area

| contents | Symbol position | data | contents | corresponding line |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 6 | Replay |  |

third stop operation(right reel 3R)
expected display combination storing area1

$\uparrow$
second stop operation(center reel 3C)
expected display combination storing areal

$\uparrow$

FIG．23B

| \％ | $\begin{aligned} & \text { 은 } \\ & \text { 응 } \end{aligned}$ | $\begin{aligned} & \bar{ㅇ} \\ & \overline{0} \\ & \hline 8 \end{aligned}$ | 을 | $\begin{aligned} & \bar{\circ} \\ & \hline 0 \\ & \hline 8 \\ & \hline 8 \end{aligned}$ | $\begin{aligned} & \text { 음 } \\ & ㅇ ㅡ ㅇ ~ \end{aligned}$ |  | $\begin{aligned} & 8 \\ & \hline 0 \\ & \hline 0 \\ & \hline 8 \end{aligned}$ | 응 | $\begin{aligned} & 8 \\ & 0 \\ & \hline 8 \\ & \hline 8 \end{aligned}$ | $\bar{\circ}$ <br> 8 <br> 8 <br> 8 | 응 | $\begin{aligned} & \bar{ㅇ} \\ & \text { 응 } \end{aligned}$ | $\begin{aligned} & \text { 음 } \\ & \text { 응 } \end{aligned}$ | $\begin{aligned} & \text { 응 } \\ & \text { ㅇㅇㅇ } \end{aligned}$ | 을 <br> $⿳ 亠 口 冋$ | － |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\bigcirc$ | － | $\sim$ | ๓ | － | $\sim$ | $\stackrel{1}{2}$ | $\stackrel{-}{-}$ | － | $\infty$ | 옴 | 근 | 0 | － | $\sim$ | $\cdots$ |

second stop operation（center reel 3C）
expected display combination storing areal expected display combination storing areal

|  | $\overline{8}$ <br> 8 <br> 8 | $\overline{8}$ <br> 8 <br> 8 | $\begin{aligned} & \overline{8} \\ & \frac{0}{8} \end{aligned}$ | $\begin{aligned} & \bar{\circ} \\ & \hline 8 \\ & \hline 8 \end{aligned}$ | $\begin{aligned} & 8 \\ & \frac{8}{ㅇ} \\ & \hline 8 \end{aligned}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\bigcirc$ | － | $\sim$ | 毋 | ＊ |  |


| 15 | 00010001 |
| :---: | :---: | | 16 | 00010001 |
| :---: | :---: |
| 17 | 00010100 | | 17 | 00010100 |
| :---: | :---: |
| 18 | 00010001 | | 19 | 00010001 |
| :---: | :---: |
| 20 | 00010001 | | 20 | 00010001 |
| :---: | :---: |
| 0 | 00010100 | | 10 | 00010100 |
| :--- | :--- |
|  |  | 100010001 | 2 | 00010001 |
| :--- | :--- | | $-\overline{8}$ |
| :--- |
| $\frac{8}{8}$ |
| 8 |
|  |


$\uparrow$ 00101000 | 16 | 00010100 |
| :---: | :---: |
| 17 | 00010100 |
| 18 | 00010100 |
| 19 | 00010000 | | 19 | 00010000 |
| :---: | :---: |
| 20 | 00010001 | | 0 | 00010001 |
| ---: | ---: |
| 1 | 00010100 |
| 2 | 00010100 |
| 3 | 00010001 | | 항 |
| :--- |
| -8 |
| -8 |
|  |



$\qquad$| 16 | 00010100 |
| :--- | :--- |


$\uparrow$ expected display combination storing areal | symbol position | data |
| :---: | :---: |
| 0 | 01010100 |
| 1 | 00010101 |
| 2 | 00010100 |
| 3 | 00010001 |
| 4 | 00010100 |
| $\quad$ |  | | 5 | 00010000 |
| :--- | :--- |

FIG. 24 (RESET-INTERVENTION PROCESS UNDER CONTROL OF MAIN CPU)


FIG. 25
(MEDAL RECEIVING $\times$ START CHECKING PROCESS)


FIG. 26


FIG. 27
(REEL STOP INITIALZATION PROCESS)



FIG. 29


TAKING EXCLUSIVE LOGICAL SUM OF DE REGISTER AND HL REGISTER
AND TAKING LOGICAL PRODUCT OF RESULT THEREOF AND HL REGISTER


SETTING 1 AS INITLAL VALUE OF PRIORITY RANKING AND SETTING 5 AS THE NUMBER OF CHECKS


FIG. 30


FIG. 31
(DISPLAY COMBINATION RETRIEVING PROCESS)


FIG. 32
(REEL STOP CONTROL PROCESS)


FIG. 33


FIG. 34
(EXPECTED DISPLAY COMBINATION STORING AREA SELECTING PROCESS)


FIG. 35


FIG. 36
(BONUS END CHECKING PROCESS)


FIG. 37
(INTERVENTION PROCESS HAVING A PERIOD OF 1.1173 ms UNDER CONTROL OF MAIN CPU)


## GAMING MACHINE

## CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims benefit under 35 U.S.C. § 119 from Japanese Patent Application No. 2005-253849, filed on Sep. 1, 2005, the entire content of which is incorporated herein by reference.

## BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention The present invention relates to a gaming machine.

## [0003] 2. Description of Related Art

[0004] It has been conventionally known a gaming machine, so-called, pachi-slot machine comprising a plurality of reels, each of which having plural symbols arranged on a periphery thereof; plural display windows mounted to correspond to each of the reels and displaying some of the plural symbols arranged on the periphery of each reel so as to allow a player to see them; a start switch for outputting a signal requesting start of rotation of each reel, based on an operation by the player (hereinafter, referred to as "start operation"), on condition that a medal has been inserted; a stop switch for outputting a signal requesting stop of the rotation of the reel, correspondingly to types of the reels, based on an operation by the player (hereinafter, referred to as "stop operation"); and a control unit for controlling an operation of a stepping motor to rotate and stop the respective reels, based on the signals outputted from the start switch and the stop switch.
[0005] At present time, in the pachi-slot machine forming the mainstream, an internal lottery is carried out, based on detection of the start operation, and the rotation of reel is stopped, based on a result of the internal lottery (hereinafter, a type of the internal lottery result will be referred to as "internal winning combination") and the timing of the stop operation. When the rotation of reel is stopped, it is determined whether a winning is achieved on the basis of a combination of symbols displayed in the display windows, and a medal is paid out when it is determined that a winning is achieved. Accordingly, even though an internal winning combination relating to a winning is determined by the internal lottery, if the stop operation is not carried out at an appropriate timing, a combination of symbols corresponding to the internal winning combination is not displayed in the display window, so that a winning is not determined. Accordingly, it is necessary for a player to have a skill, i.e., so-called observation push.
[0006] In other words, in the above gaming machine, when it is carried out the stopping of the rotation of reel, the stopping can be made after the reel is rotated within a predetermined range since the stop operation is detected. Accordingly, if an internal winning combination relating to a winning has been determined, the control for stopping the rotation of reel is carried out so that a combination of symbols corresponding to the internal winning combination is displayed in the display window as much as possible. To the contrary, if an internal winning combination relating to a winning has not been determined, the control for stopping the rotation of reel is carried out so that a combination of symbols relating to the winning is not displayed in the
display window even though the stop operation has been carried out at the appropriate timing.
[0007] In recent years, for the purpose of maintaining player's expectations, it has been suggested a gaming machine wherein the control for stopping the rotation of reel is carried out so that a symbol constituting a combination of symbols relating to a winning, so-called Check is displayed until the reels being rotated become the last one, irrespective of types of an internal winning combination, and a symbol relating to an internal winning combination which is not determined is not displayed when the rotation of the last reel is stopped (for example, see a Japanese Unexamined Patent Publication No. 2003-62170).
[0008] However, according to the conventional gaming machine, when the Check relating to the internal winning combination not determined is displayed, it is not possible to avoid displaying the combination of symbols relating to the internal winning combination not determined, depending on the arrangements of symbols on the reels. Accordingly, it is necessary to limit the structures regarding the arrangement of symbols on the reels, the types of the internal winning combination, etc., so that it is impossible to freely design or development the gaming machine.

## SUMMARY OF THE INVENTION

[0009] Accordingly, the invention has been made to solve the above-mentioned problems occurring in the prior art. An object of the invention is to provide a gaming machine capable of preventing the degree of freedom of developments thereof from being lost.
[0010] In order to achieve the above object, according to the invention, there is provided a gaming machine comprising: a plurality of reels, each of which displaying a plurality of symbols; a start operation detection unit (for example, start switch 6S) for detecting a start operation; an internal winning combination determining unit (for example, internal lottery process in FIG. 26, main control circuit 71) for determining an internal winning combination on the basis of the start operation detection carried out by the start operation detection unit; a reel rotation unit (for example, reel control process in a step S303 of FIG. 37, main control circuit 71) for rotating the reels, respectively; a stop operation detection unit (for example, stop switch 7S) for detecting a stop operation depending on types of the reels; a first symbol determining unit (for example, display combination retrieving process in a step S139 and priority ranking checking process in a step S141 of FIG. 28, main control circuit 71) for determining a combination of symbols to be displayed in a predetermined area (for example, center line $8 c$ ), based on an internal winning combination determined by the internal winning combination determining unit; a second symbol determining unit (for example, display checking process in a step S137 and priority ranking checking process in a step S144 of FIG. 28, main control circuit 71) for determining a combination of symbols to be displayed in an area (for example, top line $8 b$, bottom line $8 d$, cross-up line $8 a$, cross-down line $8 e$ ) different from the predetermined area, based on an internal winning combination determined by the internal winning combination determining unit; a reel stop unit (for example, reel stop control process in FIG. 32, reel control process in a step S303 of FIG. 37, main control circuit 71) for stopping rotation of the reels, based on the
combination of symbols determined by the first symbol determining unit and the combination of symbols determined by the second symbol determining unit, when a stop operation detection is carried out by the stop operation detection unit; and a winning determining unit (for example, display combination retrieving process in a step S13 of FIG. 24, main control circuit 71) for determining whether a winning is established or not, based on the combination of symbols displayed in the predetermined area, among a plurality of symbols displayed by the stopped reels, when the rotation of the reels is stopped.
[0011] According to the above gaming machine, a combination of symbols to be displayed in a predetermined area and a combination of symbols to be displayed in an area different from the predetermined area are determined on the basis of the internal winning combination, and the rotation of reel is stopped, based on the combination of symbols to be displayed in the predetermined area and the combination of symbols to be displayed in the area different from the predetermined area. In other words, a combination of symbols to be displayed in a predetermined area and a combination of symbols to be displayed in an area different from the predetermined area are determined in advance based on the internal winning combination, and then the rotation of reel can be stopped so that the combinations of the symbols are displayed in each of the areas.
[0012] In addition, according to the gaming machine, it is determined whether a winning is established or not, based on only the combination of symbols displayed in the predetermined area, among the combination of symbols to be displayed in the predetermined area and the combination of symbols to be displayed in the area different from the predetermined area. Accordingly, the target areas, for which it is carried out the determination of whether a winning is established, are reduced, so that it is possible to easily avoid displaying a combination of symbols relating to an internal winning combination not determined. As a result, it is not necessary to limit arrangements of the symbols on the reels beyond necessity and it is possible to freely develop the gaming machine.
[0013] Further, since it is not determined whether a winning is established with regard to the combination of symbols to be displayed in the area different from the predetermined area, it is possible to display a combination of symbols relating to an internal winning combination determined, not to display a combination of symbols relating to an internal winning combination determined, or to display a combination of symbols relating to an internal winning combination not determined in the area different from the predetermined area, for example. In addition, it is possible to carry out an effect such as notification of an internal winning combination by displaying a combination of certain symbols in the area different from the predetermined area.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0014] Other and further objects, features and advantages of the invention will appear more fully from the following description taken in connection with the accompanying drawings, in which:
[0015] FIG. 1 is a perspective view of schematically showing a gaming machine according to an embodiment of the invention;
[0016] FIG. 2 shows symbols arranged on three reels;
[0017] FIG. 3 is a block diagram of an electric circuit of the gaming machine;
[0018] FIG. 4 is a view showing a symbol arrangement table of the gaming machine;
[0019] FIG. 5 is a view showing an internal lottery table determining table of the gaming machine;
[0020] FIG. 6A shows an internal lottery table for normal gaming state of the gaming machine;
[0021] FIG. 6B shows an internal lottery table for RB gaming state of the gaming machine;
[0022] FIG. 7 shows an internal winning combination determining table of the gaming machine;
[0023] FIG. 8 shows a reel stop initialization table of the gaming machine;
[0024] FIG. 9 shows a symbol combination table for stop-control of the gaming machine;
[0025] FIG. 10 shows a priority attraction-in ranking table of the gaming machine $\mathbf{1}$;
[0026] FIG. 11A is a view showing a retrieval parameter table for Losing of the gaming machine;
[0027] FIG. 11B is a view showing a retrieval parameter table for RB1 of the gaming machine;
[0028] FIG. 12 shows a retrieval order table determining table of the gaming machine;
[0029] FIG. 13 shows a symbol combination table of the gaming machine;
[0030] FIG. 14 shows a table on bonus operation of the gaming machine;
[0031] FIG. 15 shows an internal winning combination storing area of a RAM included in a main control circuit;
[0032] FIG. 16 shows an internal carryover combination storing area of the RAM included in the main control circuit;
[0033] FIG. 17 is a view showing an area for storing a winning combination for reel-stop of the RAM included in the main control circuit;
[0034] FIG. 18 shows a display combination storing area of the RAM included in the main control circuit;
[0035] FIG. 19 shows a pseudo display combination storing area of the RAM included in the main control circuit;
[0036] FIG. 20 is a view showing a flag counter of the RAM included in the main control circuit;
[0037] FIG. 21 shows a symbol storing area of the RAM included in the main control circuit;
[0038] FIG. 22 shows an expected display combination storing area of the RAM included in the main control circuit;
[0039] FIG. 23A is a view showing a storing example of an expected display combination storing area of the RAM included in the main control circuit (when losing is determined);
[0040] FIG. 23B is a view showing a storing example of an expected display combination storing area of the RAM included in the main control circuit (when RB1 is determined);
[0041] FIG. 24 is a flow chart showing a RESET intervention process carried out by the main control circuit;
[0042] FIG. 25 is flow chart showing a medal receiving start checking process by the main control circuit;
[0043] FIG. 26 is a flow chart showing an internal lottery process by the main control circuit;
[0044] FIG. 27 is a flow chart showing a reel stop initialization process by the main control circuit;
[0045] FIG. 28 is a flow chart showing an expected display combination storing process by the main control circuit;
[0046] FIG. 29 is a flow chart showing a priority ranking checking process by the main control circuit;
[0047] FIG. 30 is a flow chart showing a display checking process by the main control circuit;
[0048] FIG. 31 is a flow chart showing a display combination retrieving process by the main control circuit;
[0049] FIG. 32 is a flow chart showing a reel stop control process by the main control circuit;
[0050] FIG. 33 is a flow chart showing a priority attrac-tion-in control process by the main control circuit;
[0051] FIG. 34 is a flow chart showing a process of selecting an expected display combination storing area by the main control circuit;
[0052] FIG. 35 is a flow chart showing a bonus operation checking process by the main control circuit;
[0053] FIG. 36 is a flow chart showing a bonus end checking process by the main control circuit; and
[0054] FIG. 37 is a flow chart showing an intervention process having a period of 1.1173 msec by the main control circuit.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0055] Hereinafter, it will be described a preferred embodiment of the present invention with reference to the drawings. First, a gaming machine $\mathbf{1}$ according to an embodiment of the invention is schematically described with reference to FIG. 1.
[0056] The gaming machine $\mathbf{1}$ comprises a cabinet $\mathbf{1} a$ receiving reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$, a main control circuit 71 (see FIG. 3) and the like which will be described later, and a front door $1 b$ which is mounted to be opened and closed with regard to the cabinet $1 a$.
[0057] The three reels 3L, 3C, 3R are horizontally mounted in a row in the cabinet $1 a$. In addition, plural symbols are continuously arranged in a rotation direction of the reel on a periphery of each of the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$. Each of the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$ is controlled to rotate at a constant speed (for example, 80 revolutions/minute) by the main control circuit 71 which will be described later. The plural symbols arranged on the peripheries of the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$ are varied as the reels are rotated.
[0058] In addition, a panel display unit 2 having an approximately horizontal surface is provided to the front door $1 b$, and three display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ having a rectangular shape are mounted to a center of the panel display unit 2, as symbol display areas. Each of the display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ is mounted to be located before the corresponding reels $\mathbf{3 L}, \mathbf{3 C}, \mathbf{3 R}$, so that it is possible to observe the rotation and stopping of the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$ through the display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$. In addition, one symbol is displayed in each of the upper, central and lower areas of the respective display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$, so that three symbols of the symbols arranged on the corresponding reels are displayed in the respective display windows 4 L , $4 \mathrm{C}, 4 \mathrm{R}$. In the mean time, the display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ (or reels 3L, 3C, 3R) constitute a part of symbol display means.
[0059] In addition, there are provided areas (combination of areas) in the display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$, which consist of one of upper, central and lower parts of the respective display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$. Specifically, there is an area connecting the central parts of the respective display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ each other, which is referred to as a center line $8 c$, for convenience sake. There is an area connecting the upper parts of the respective display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ each other, which is referred to as a top line $8 b$. In addition, there is an area connecting the lower parts of the respective display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ each other, which is referred to as a bottom line $8 d$. Additionally, there is an area connecting the lower part of the left display windows 4 L , the central part of the center display window $4 C$ and the upper part of the right display window 4 R each other, which is referred to as a cross-up line $8 a$. Further, there is an area connecting the upper part of the left display windows 4 L , the central part of the center display window 4 C and the lower part of the right display window 4 R each other, which is referred to as a cross-down line $8 e$. In the mean time, the center line $8 c$ is an example of a predetermined area. In addition, the top line $8 b$, the bottom line $8 d$, the cross-up line $8 a$ and the bottom-line are examples of an area different from the predetermined area.
[0060] A medal insertion slot 22 for inserting a medal into the gaming machine $\mathbf{1}$ is provided to a right side of a liquid crystal display device 5 . When the medal is inserted through the medal insertion slot 22 , the center line $8 c$ is activated (line activated will be referred to as activated line). When three or more medals are continuously inserted, they are deposited (i.e., credited) in the gaming machine 1. In the mean time, the gaming machine 1 uses a medal as a game medium. However, the game medium used in the gaming machine 1 is not limited to the medal, and a coin, a gaming ball, a token, a card storing information about an amount of the medals, and the like may be applied.
[0061] A 1-BET button 11, a 2-BET button 12 and a MAX-BET button 13 for determining the number of medals inserted for a unit game (for example, one game from after the reels are started to rotate until the rotation of reels is stopped and thus a result of game is obtained) from the credited medals are mounted to a left side of the liquid crystal display device 5 . When the 1 -BET button 11 is pushed, one piece is inserted from the medals credited, when the 2 -BET button 12 is pushed, two pieces are inserted, and when the MAX-BET button 13 is pushed, three pieces are inserted.
[0062] To the left side of the display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ are mounted a 1-BET lamp 9a, a 2-BET lamp $9 b$ and a MAX-BET lamp $\mathbf{9}_{c}$. The 1-BET lamp $\mathbf{9}_{a, 2}$ 2-BET lamp $9 b$ and MAX-BET lamp $9 c$ are turned on in correspondence with the number of medals inserted in the unit game (hereinafter, referred to as "insertion number"). When the insertion number is one, two and three pieces, the 1-BET lamp $9 a$, the 2-BET lamp $9 b$ and the MAX-BET lamp $9 c$ are turned on, respectively.
[0063] An information display unit 18 is mounted below the BET lamps $\mathbf{9} a, 9 b, 9 c$. The information display unit $\mathbf{1 8}$ consists of 7 segment LEDs and displays the number of medals deposited (so-called "credited") in the gaming machine 1, the number of medals to be paid out to a player (hereinafter, referred to as "payout number") and the like.
[0064] A base portion 10 having a horizontal surface is provided below the display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$, and the liquid crystal display device 5 is provided between the base portion 10 and the display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$. The information about the game, etc. is displayed on a display screen $5 a$ of the liquid crystal display device 5 .
[0065] An operating unit 17 is mounted above the BET buttons 11, 12, 13, which consists of a cross key, a selection button and a determination button. Based on a manipulation of the operating unit $\mathbf{1 7}$ by the player, the information about the game such as game history is displayed on display screen $5 a$ of the liquid crystal display device 5.
[0066] A C/P button 14 for switching credits (Credit) or payouts (Pay) of medals is mounted to a frontal left side of the base portion $\mathbf{1 0}$. In case that the payout is carried out, the medals as the payout number are paid out from a frontal lower medal payout slot $\mathbf{1 5}$ and stacked on a medal tray 16. In addition, in case that the credit is carried out, the medals as the payout number are credited. Herein, the payout and credit of the medal may be simply referred to as "payout".
[0067] To a right side of the C/P button 14 is mounted a start lever 6 for rotating the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$ and starting the variation of the symbols displayed in the display windows 4L, 4C, 4R.
[0068] Stop buttons 7L, 7C, 7R which are mounted to correspond to the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$ and stop the rotation of the reels 3L, 3C, 3R are mounted below the liquid crystal display device 5 , in the frontal center of the base portion 10.
[0069] Hereinafter, a stop operation which is first of all carried out when all the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$ are rotated (i.e., a player's push operation for the stop buttons 7L, 7C, 7R) will be referred to as "first stop operation", a stop operation which is carried out following the first stop operation when the two reels are rotated will be referred to as "second stop operation", and a stop operation which is carried out following the second stop operation when the remaining one reel is rotated will be referred to as "third stop operation".
[0070] A LED 101 and a lamp 102 are mounted at the upper part of the front door $\mathbf{1} b$. The LED 101 and the lamp 102 emit lights with a radiation pattern corresponding to game situations, and perform an effect relating to a game.
[0071] Speakers 21L, 21R are mounted at upper left and right sides of the medal tray $\mathbf{1 6}$. Sound such as effect sound or sing corresponding to the game situations is outputted from the speakers $21 \mathrm{~L}, 21 \mathrm{R}$ to perform the effect relating to a game.
[0072] In the followings, it is described symbols arranged on the reels 3L, 3C, 3R, with reference to FIG. 2.
[0073] The plural types of 21 symbols are arranged on the respective reels 3L, 3C, 3R. Specifically, 21 areas are provided on the periphery of each of the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$, each of which being allotted with a one symbol. Each symbol of Red 7 (symbol 61), Blue 7 (symbol 62), BAR (symbol 63), Watermelon (symbol 64), Bell (symbol (65), Replay (symbol 66), Cherry (symbol 67) and Blank (symbol 68 ) is arranged on each of the corresponding areas. In the mean time, Blank (symbol 68) is expressed by space. Each of the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$ is rotated in an arrow direction of FIG. 2.
[0074] In the followings, it is described a circuit structure of the gaming machine $\mathbf{1}$ comprising a main control circuit 71, a sub-control circuit 72 and a peripheral device (e.g., actuator) electrically connected to the main control circuit 71 or a sub-control circuit 72, with reference to FIG. 3.
[0075] The main control circuit 71 comprises a micro computer $\mathbf{3 0}$ arranged on a circuit board as a main constituting element and is further provided with a circuit for sampling random numbers. The micro computer $\mathbf{3 0}$ includes a CPU 31 and a ROM 32 and a RAM 33 which are memory means.
[0076] To the CPU 31 is connected a clock pulse generating circuit 34 , a frequency divider 35 , a random number generator 36 and a sampling circuit 37 . The clock pulse generating circuit 34 and the frequency divider 35 generate a reference clock pulse. Based on the generated reference clock pulse, an intervention process which will be described later is carried out. The random number generator $\mathbf{3 6}$ generates a random number within a predetermined range (for example, $0 \sim 65535$ ). The sampling circuit 37 extracts (samples) one random number from the random numbers generated by the random number generator 36 . By using the sampled random number, an internal lottery process and the like are carried out, which will be described later, and predetermined information (for example, winning number) is determined.
[0077] The ROM 32 of the micro computer $\mathbf{3 0}$ memorizes programs relating to processes of the CPU $\mathbf{3 1}$ (see FIGS. 24 to 37 ), various tables such as priority attraction-in ranking table and retrieval order table (see FIGS. 4 to 16), and various control commands for being transmitted to the sub-control circuit 72.
[0078] Various data obtained from the processes of the CPU 31 is memorized in the RAM 33 . For example, an area (see FIGS. 17 to 23B) for storing priority attraction-in ranking data relating to each symbol position is provided therein. These data are transmitted to the sub-control circuit 72 by the commands.
[0079] In the circuit shown in FIG. 3, main actuators controlled by a control signal from the micro computer 30 include the BET lamps $9 a, 9 b, 9 c$, the information display unit 18 , a hopper 40 , stepping motors $49 \mathrm{~L}, 49 \mathrm{C}, 49 \mathrm{R}$ and the like.
[0080] In addition, to an output unit of the micro computer 30 are connected each of circuits for receiving the control signals outputted from the CPU 31 to control the operations of the respective actuators. The circuits include a motor
driving circuit 39, a lamp driving circuit 45, a display unit driving circuit 48 and a hopper driving circuit 41.
[0081] The lamp driving circuit 45 controls the driving of the BET lamps $\mathbf{9} a, \mathbf{9} b, \mathbf{9} c$. Thereby, the BET lamps $9 a, 9 b$, $9 c$ are turned on or off.
[0082] The display unit driving circuit 48 controls the driving of the information display unit 18. Thereby, various information (credit number, etc.) is displayed on the information display unit 18.
[0083] The hopper driving circuit 41 controls the driving of the hopper $\mathbf{4 0}$. Thereby, the medals received in the hopper 40 are paid out.
[0084] The motor driving circuit 39 outputs the pulse coming from the main control circuit 71 to the stepping motors $49 \mathrm{~L}, 49 \mathrm{C}, 49 \mathrm{R}$ and controls the driving of the stepping motors $49 \mathrm{~L}, 49 \mathrm{C}, 49 \mathrm{R}$. Thereby, the reels 3L, 3C, 3 R are rotated and stopped.
[0085] In this embodiment, it is counted the number of pulses outputted to the stepping motors 49L, 49C, 49R from after a reel index indicating one revolution of the reel is detected by a reel position detection circuit $\mathbf{5 0}$, so that a rotation angel of the reel is detected on the basis of the detected position of the reel index. In addition, the pulse is outputted 16 times to the stepping motors $49 \mathrm{~L}, 49 \mathrm{C}, 49 \mathrm{R}$, so that the reel is rotated as a one symbol arranged on the periphery of the reel.
[0086] More specifically, the number of pulses outputted to the stepping motors $49 \mathrm{~L}, 49 \mathrm{C}, 49 \mathrm{R}$ is counted by a pulse counter of the RAM 33, and a symbol position counter of the RAM 33 is added by one whenever 16 times of pulse outputs are counted by the pulse counter. In addition, a value of the symbol position counter is cleared whenever the reel index is detected.
[0087] Each of the symbols arranged on the periphery of the reel is defined with symbol positions " 0 " $\sim$ " 20 " for discriminating each of the symbols in regular order from the rotation direction of the reel. The reel index is detected by a reel position detection circuit $\mathbf{5 0}$ so that the symbol corresponding to the symbol position " 0 " is located on the center line $8 c$ (more specifically, center part of the longitudinal direction of the respective display windows $4 \mathrm{~L}, 4 \mathrm{C}$, 4 R ).
[0088] In other words, when the value of the symbol position counter becomes " 0 " by the detection of the reel index, the symbol corresponding to the symbol position " 0 " is located on the center line $8 c$, so that the symbol counter and the symbol position correspond to each other. Accordingly, by referring to the symbol position counter, it is possible to specify the symbol located on the center line $8 c$.
[0089] In the mean time, the symbol position counter constitutes a part of symbol specifying means for specifying a symbol of a predetermined position (for example, center line $8 c$ ).
[0090] To an input unit of the micro computer 30 are connected switches and the like which output predetermined signals performing the controls of the actuators. Specifically, a start switch $\mathbf{6 S}$, a stop switch 7S, a 1 -BET switch 1 S , a 2-BET switch 12S, a MAX-BET switch 13S, a C/P switch

14S, a medal sensor 22S, the reel position detection circuit $\mathbf{5 0}$ and a payout completion signal circuit $\mathbf{5 1}$ are connected.
[0091] The start switch 6S detects the start operation of the player for the start lever 6 and outputs a detected signal to the micro computer 30. In the mean time, the start switch 6S constitutes a part of start operation detection means.
[0092] The stop switch 7S detects the stop operation of the player for the respective stop buttons $7 \mathrm{~L}, 7 \mathrm{C}, 7 \mathrm{R}$ and outputs a detected signal to the micro computer $\mathbf{3 0}$. In the mean time, the stop switch 7S constitutes a part of stop operation detection means.
[0093] The 1-BET switch 11S, the 2-BET switch 12S and the MAX-BET switch 13S detect the insertion operations of the player for the 1-BET button 11, the 2-BET button 12 and the MAX-BET button 13, respectively, and output a detected signal to the micro computer $\mathbf{3 0}$.
[0094] The C/P switch 14S detects the switching operation of the player for the C/P button 14 and outputs a detected signal to the micro computer $\mathbf{3 0}$.
[0095] The medal sensor 22S detects a medal inserted into the medal insertion slot 22 by the player and outputs a detected signal to the micro computer 30.
[0096] The reel position detection circuit 50 detects the reel index indicating one revolution of the reel for each of the reels 3L, 3C, 3R and outputs a detected signal to the micro computer 30.
[0097] The payout completion signal circuit 51 detects that the number of medals (i.e., the number of medals paid out from the hopper 40) reaches an indicated payout number through a medal detection unit 40S and outputs a detected signal to the micro computer $\mathbf{3 0}$.
[0098] The sub-control circuit 72 executes various processes (for example, determination or execution of contents of effect), based on the various commands (for example, start command) outputted from the main control circuit 71. In the mean time, the sub-control circuit 72 does not input the command, the information, etc. to the main control circuit 71. In other words, the communication of the main control circuit 71 and the sub-control circuit 72 is carried out in a one-way manner, from the main control circuit 71 to the sub-control circuit 72.
[0099] The main actuators controlled by the sub-control circuit 72 include the liquid crystal display device 5, the speakers 21L, 21R, the LED 101 and the lamp 102. The sub-control circuit 72 determines and displays an image to be displayed on the liquid crystal display device $\mathbf{5}$, determines and outputs a lighting-up pattern of the LED 101 or lamp 102, and determines and outputs effect sound, based on the contents of effect determined.
[0100] The sub-control circuit 72 is connected with the operating unit 17 and a sound volume adjusting unit 103 and outputs an image or sound, based on the signal outputted from them.
[0101] In the followings, a symbol arrangement table is described with reference to FIG. 4.
[0102] The symbol arrangement table shows the symbols arranged on the peripheries of the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$, as data. In other words, the symbol arrangement table defines Red 7,

Blue 7, BAR, Watermelon, Replay, Cherry and Blank in an arrangement as shown in FIG. 2. A type of the respective symbols is expressed by 1 byte data, as shown. For example, the data representing Red 7 is " 00000001 ".
[0103] In addition, with the symbol located on the center line $8 c$ being defined as the symbol position " 0 " when the reel index is detected, the symbol arrangement table defines the symbol positions " 0 " to " 20 " corresponding to the symbol position counter and types of symbols corresponding to the respective symbol positions. Accordingly, based on the symbol arrangement table and the symbol position counter, symbols of the respective reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$ on the center line $8 c$ and types thereof can be specified. For example, when the symbol counter of the right reel 3 R is " 11 ", it is specified that Blue 7 (symbol 62) of the symbol position " 11 " of the right reel 3 R is located on the center line $8 c$. In addition, by referring to the symbol position counter and the symbol arrangement table, besides the symbol located on the center line $8 c$, it is possible to specify symbols adjacent to the corresponding symbol and types thereof.
[0104] In the mean time, the symbol arrangement table constitutes a part of symbol specifying means for specifying a symbol of a predetermined position (for example, center line $8 c$ ).
[0105] In the followings, an internal lottery table determining table is described with reference to FIG. 5.
[0106] The internal lottery table determining table defines a type of an internal lottery table and the number of lotteries, which are determined in accordance with the gaming states. In a normal gaming state, it is determined an internal lottery table for normal gaming state and the number of lotteries is basically determined to be 7 . In a regular bonus (hereinafter, abbreviated as "RB") gaming state, it is determined an internal lottery table for RB gaming state and the number of lotteries is determined to be 3 .
[0107] In the followings, an internal lottery table is described with reference to FIG. 6A, FIG. 6B.
[0108] The internal lottery table defines the lowest and upper limits of random numbers allotted in accordance with each of winning numbers. The winning number is data used to determine an internal winning combination on the basis of an internal winning combination determining table which will be described later.
[0109] In the internal lottery table, it is retrieved whether the random number value sampled from a range of " $0 \sim 65535$ " is included between the lowest limit and the upper limit of the random numbers allotted to the respective winning numbers, in descending power of the winning numbers. In case that the sampled random number value is included between the lowest limit and the upper limit, a corresponding winning number is determined. The number of lotteries indicates the number of the above retrievals. As a result of performing the retrieval as the number of lotteries, when any winning number is not matched, the winning number 0 (i.e., Losing) is determined.
[0110] FIG. 6A shows an internal lottery table for normal gaming state. In the internal lottery table for normal gaming state, the lowest and upper limits of the random number value allotted to each of the winning numbers 1~7 are defined in correspondence with the insertion numbers 1 to 3 .

A winning probability of each winning number can be calculated by " $(1+$ difference between the lowest and upper limits defined for each winning number)/the number of all random number values occurring (65536) in the table". In the internal lottery table for normal gaming state, the greater the insertion number, the higher the winning probability by stages.
[0111] In addition, in the internal lottery table for normal gaming state, there is defined a value duplicating for the plural winning numbers. When a random number included in the duplicating value is sampled, the plural winning numbers are together determined in one unit game. For example, in case of the insertion number of 3 , when a sampled random number is within a range of " $1785 \sim 1829$ ", the winning number 3 (i.e., Watermelon) and the winning number 7 (i.e., RB1) are determined together.
[0112] FIG. 6B shows an internal lottery table for RB gaming state. In the $R B$ gaming state, the maximum insertion number is determined to be 1 piece. Accordingly, in the internal lottery table for RB gaming state, it is defined the lowest and upper limits corresponding to each of the winning numbers 1 to 3 , with regard to the insertion number 1 only. In the internal lottery table for RB gaming state, the winning probability of the winning number 2 (i.e., Bell) is very high.
[0113] In the followings, an internal winning combination determining table is described with reference to FIG. 7.
[0114] The internal winning combination determining table defines an internal winning combination in relation to the winning number. Specifically, each of Losing, Cherry, Bell, Watermelon, Replay, RB3, RB2 and RB1 is defined in correspondence with each of the winning numbers $0 \sim 7$. In other words, if a winning number is determined by the internal lottery table, an internal winning combination is determined in accordance with the corresponding winning number. Accordingly, it can be said that the determination of the winning number is equivalent to the determination of the internal winning combination. In addition, a type of each internal winning combination is expressed by 1 byte data. For example, the data representing RB1 is " 01000000 ".
[0115] In the followings, a reel stop initialization table is described with reference to FIG. 8.
[0116] The reel stop initialization table defines a type of a retrieval parameter table in correspondence with a flag counter. The flag counter is data for determining a retrieval parameter table and basically identical to the winning number. Specifically, it is defined retrieval parameter tables corresponding to each of Losing, Cherry, Bell, Watermelon, Replay, RB3, RB2 and RB1, in correspondence with each of the flag counters 0 to 7 .
[0117] In the followings, a symbol combination table for stop-control is described with reference to FIG. 9.
[0118] The symbol combination table for stop-control defines types of combinations of symbols and types of display combinations corresponding. Specifically, Cherry, Bell, RB3, RB2 and RB1 are defined as a display combination. The display combination is expressed by 1 byte data, as the data representing the internal winning combination.
[0119] In the followings, a priority attraction-in ranking table is described with reference to FIG. 10.
[0120] In the gaming machine 1 , it is carried out the control for stopping the rotation of reels 3L, 3C, 3R within 190 msec after the signal is outputted by the stop switch 7S, and the number of sliding symbols is set to be maximum 4 symbols.
[0121] The number of sliding symbols is the number of symbols passing to the center line $8 c$, from after the stop operation is detected through the stop switch 7S until the rotation of the corresponding reel is stopped. It is perceived by a value of the symbol counter updated from after the stop operation is detected through the stop switch 7 S .
[0122] For example, in case that the number of sliding symbols determined is 4 symbols, when the push operation for right stop button 7R is detected by the stop switch 7S and the symbol position counter of the right reel 3 R is " 0 " at that time, the rotation of the right reel 3 R is stopped when the symbol position counter is updated to " 4 ". Thereby, when Red 7 (symbol 61) of the symbol position " 0 " is located on the center line $8 c$, if the push operation for the stop button 7R is detected, it is possible to stop the rotation of the right reel 3 R so that Watermelon (symbol 64) of the symbol position " 4 " is displayed on the center line $8 c$.
[0123] Like this, the control for stopping the rotation of reel is referred to as "attraction-in", which allows the symbol within a range of the maximum number of sliding symbols to be displayed at a symbol position (i.e., symbol position from which the reel starts to stop, and referred to as "stop starting position") corresponding to the symbol counter of the reel at the time when the stop operation for the reel is detected by the stop switch 7S. In addition, a position of the symbol which is attracted-in as the number of sliding symbols from the stop starting position and then stopped is referred to as "expected stop position".
[0124] In the priority attraction-in ranking table, it is defined the attraction-in data in relation with each of priority rankings. The priority ranking defines rankings in which the attraction-in is preferentially carried out between the types (or types of symbols) of the internal winning combination (including winning combination for reel-stop). The priority rankings 1 to 5 are defined in correspondence with the types of the internal winning combination. Specifically, it is defined the attraction-in data representing "Replay 1", "RB1, RB2 or RB3", "Bell", "Watermelon", and "Cherry" in order of the priority rankings $\mathbf{1}$ to 5 . Thereby, in case that two or more types of internal winning combinations are determined, it is determined which type of internal winning combination will have priority.
[0125] Herein, RB1, RB2 and RB3 are grouped to have the same priority ranking. Thereby, it is possible to reduce the types of priority ranking and to decrease the data capacity, as compared to a case where the priority ranking is respectively defined in each of RB1, RB2 and RB3.
[0126] In addition, the priority attraction-in ranking defines the priority rankings in order of higher privileges which are awarded to the player, except "Replay". In other words, the priority rankings are defined in order of "RB1, RB2 or RB3" allowing RB to be operated, Bell having the payout number of 10 pieces, Watermelon having the payout number of 8 pieces and Cherry having the payout number of 4 pieces. Accordingly, the table is structured to consider the payouts to be awarded to the player. In the mean time, the
priority rankings defined between the types of the internal winning combination may be arbitrarily changed.
[0127] The attraction-in data is expressed by 1 byte data, likewise the data representing the internal winning combination. For example, the attraction-in data representing RB1, RB2 and RB3 is expressed by " 01110000 " in which the bit strings corresponding to each RB are ON.
[0128] In the followings, a retrieval parameter table is described with reference to FIG. 11A, FIG. 11B. FIG. 11A shows a retrieval parameter table for Losing. FIG. 11B shows a retrieval parameter table for RB1.
[0129] The retrieval parameter table defines retrieval status data in relation to the symbol position (i.e., stop starting position) of the respective reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$. The retrieval status data is referred to when it is determined a type of a retrieval order table which will be described later, and is defined with any one of 0 to 4 depending on the symbol positions " 0 " " " 20 ".
[0130] As shown in FIGS. 11A and 11B, the retrieval parameter table is structured in such a way that the different retrieval status data (for example, " 0 " and " 4 ") are determined depending on the type of the internal winning combination even at the same stop starting position (for example, " 5 " of the left reel 3L). Accordingly, the player can suppose the determined internal winning combination by carrying out the stop operation at a timing allowing for the same stop starting position and observing the type of the symbol displayed in the corresponding display window.
[0131] In the followings, a retrieval order table determining table is described with reference to FIG. 12.
[0132] The retrieval order table determining table defines types of retrieval order table in relation to the retrieval status data. Specifically, the retrieval order tables 0 to 4 are respectively defined in correspondence with the retrieval status data 0 to 4 .
[0133] The retrieval order table defines the number of sliding symbols depending on the retrieval order. The retrieval order is an order for carrying out a retrieval for the number of sliding symbols 0 to 4 and is defined with 1 to 5 . In addition, each of the retrieval order tables defines the retrieval orders different from each other with regard to the number of sliding symbols 0 to 4 . Further, the retrieval order table is structured such that it is highest the retrieval order for the number of sliding symbols having a same value as the retrieval status data (for example, when the retrieval status data is 0 , the number of sliding symbols is 0 ).
[0134] In the followings, a symbol combination table is described with reference to FIG. 13.
[0135] The symbol combination table defines a combination of symbols relating to the payout and a display combination and a payout number corresponding to it. The combination of symbols defined in the symbol combination table is referred to and it is carried out a determination of whether the combination of symbols is matched to a combination of symbols displayed on the center line $8 c$. In addition, the display combination is expressed by 1 byte data, likewise the data representing the internal winning combination.
[0136] If Cherry (symbol 67) of the left reel 3L is displayed in the central part of the left display window 4L,

Cherry is determined as an display combination, irrespective of the types of symbols displayed in the other display windows $4 \mathrm{C}, 4 \mathrm{R}$. In addition, the payout number corresponding to Cherry is 4 .
[0137] If three Bells (symbol 65) are arranged and displayed along the center line $8 c$, Bell is determined as a display combination. In addition, the payout number corresponding to Bell is 10 .
[0138] If three Watermelons (symbol 64) are arranged and displayed along the center line $8 c$, Watermelon is determined as a display combination. In addition, the payout number corresponding to Watermelon is 8 .
[0139] If three Replays (symbol 66) are arranged and displayed along the center line $8 c$, Replay is determined as a display combination. In addition, in case that Replay is determined, a re-game is carried out in a next unit game. In other words, the same number of medals as the insertion number in the unit game in which Replay is determined is automatically inserted in a next game without the insertion operation of the player. Accordingly, the player can play a next unit game without consuming the medals.
[0140] If three BARs (symbol 63) are arranged and displayed along the center line $8 c$, RB3 is determined as a display combination. In addition, if three Blue $7 s$ (symbol 62) are arranged and displayed along the center line $\mathbf{8} c, \mathrm{RB} 2$ is determined as a display combination. Further, if three Red $7 s$ (symbol 61) are arranged and displayed along the center line $8 c, \mathrm{RB} 1$ is determined as a display combination. In case that RB1, RB2 or RB3 (these can be collectively referred to as "RB") is determined, a flag under RB operation is updated to ON which will be described later, and thus a RB operation starts.
[0141] In addition, if it is displayed a combination of symbols except the combinations of symbols relating to each of Cherry, Bell, Watermelon, Replay, RB3, RB2 and RB1, Losing is determined as a display combination. Herein, Cherry, Bell or Watermelon relates to the payout of the game medium (for example, medal). In addition, Replay relates to an operation of a re-game. Further, RB3, RB2 or RB1 relates to an operation of a gaming state (for example, RB gaming state) advantageous to the player.
[0142] In the followings, a table on bonus operation is described with reference to FIG. 14.
[0143] The table on bonus operation defines data stored in a predetermined area of the RAM 33. When RB operates, the flag under RB operation of the RAM $\mathbf{3 3}$ becomes ON, $\mathbf{1 2}$ is stored in a counter for counting possible games (possible game-number counter) and 8 is stored in a counter for counting possible winnings (possible winning-number counter). The possible game-number counter is data for counting the number of games which are carried out under the RB operation and a one value is subtracted every unit game. The possible winning-number counter is data for counting the number of cases where a winning is determined under RB operation, and a one value is subtracted when a winning is determined. When the possible game-number counter or possible winning-number counter is updated to 0 , the operation of RB is ended.
[0144] In the followings, it is described an internal winning combination storing area of the RAM 33 of the main control circuit 71, with reference to FIG. 15.
[0145] If an internal winning combination is determined by the internal winning combination determining table, it is stored (memorized) in an internal winning combination storing area. The internal winning combination storing area consists of 1 byte and corresponds to the data of the internal winning combination described above. In other words, the bit string corresponding to the type of the determined internal winning combination becomes ON. Meanwhile, in case of Losing, all bits become 0 . Additionally, in case that two or more types of internal winning combinations are determined, the bit corresponding to each type becomes ON. For example, in case that Watermelon and RB1 are determined, the internal winning combination storing area becomes " 01000100 ".
[0146] In the followings, it is described an internal carryover combination storing area of the RAM 33 of the main control circuit 71, with reference to FIG. 16.
[0147] If RB1, RB2 or RB3 is determined as an internal winning combination by the internal winning combination determining table, it is stored in an internal carryover combination storing area. The internal carryover combination storing area consists of 1 byte in which RB3, RB2 and RB1 correspond to the bits $\mathbf{4}, \mathbf{5}$ and $\mathbf{6}$, respectively. When the RB operation starts, the data of the internal carryover combination storing area is cleared. In other words, in the gaming machine 1 , if RB is determined as an internal winning combination, the data thereof is stored during a period of until the combination of symbols relating to RB is displayed and the RB operation starts (which is refereed to as carryover). In the mean time, since the internal carryover combination is determined on the basis of the internal winning combination, it can be said that the internal carryover combination is a subordinate concept of the internal winning combination.
[0148] In the followings, it is described an area for storing a winning combination for reel-stop of the RAM 33 of the main control circuit 71, with reference to FIG. 17.
[0149] When the data is stored in the internal winning combination storing area, the stored data is copied to an area for storing a winning combination for reel-stop. The area for storing a winning combination for reel-stop has the same data structure as the internal winning combination storing area. The winning combination for reel-stop is used to stop the rotation of reel and is data for displaying the type of the corresponding symbol on the other 4 lines different from the center line $8 c$ (i.e., top line $8 b$, bottom line $8 d$, cross-down line $8 e$ and cross-up line which are non-activated lines). In addition, it can be said that the winning combination for reel-stop is a subordinate concept of the internal winning combination because an internal winning combination is copied to it.
[0150] Herein, the copying of the data of the internal winning combination storing area into the area for storing a winning combination for reel-stop is for carrying out the update of the data copied into the area for storing a winning combination for reel-stop in a process which will be described later. For example, when an internal winning combination is RB, a bit of Bell becomes ON in the area for storing a winning combination for reel-stop, in addition to a bit of RB. Like this, by providing the winning combination for reel-stop, it is possible to display a symbol (Bell in the above example) corresponding to it on the non-activated line
and to prevent a bad effect from occurring, such as so-called erroneous winning resulting from a direct update of the data of the internal winning combination storing area.
[0151] In the followings, it is described a display combination storing area of the RAM 33 included in the main control circuit 71, with reference to FIG. 18.
[0152] When a display combination is determined, based on the symbol combination table for stop-control (or symbol combination table), it is stored in the display combination storing area. The display combination storing area has the same data structure as the internal winning combination storing area.
[0153] In the followings, it is described a pseudo display combination storing area of the RAM 33 included in the main control circuit 71, with reference to FIG. 19.
[0154] When the display combination, which is determined on the basis of the symbol storing areas corresponding to the 4 lines except the center line $8 c$ and the symbol combination table for stop-control, is stored in the display combination storing area, the stored display combination is copied to a pseudo display combination storing area. The pseudo display combination storing area has the same data structure as the display combination storing area.
[0155] Next, it is described a flag counter of the RAM 33 included in the main control circuit 71, with reference to FIG. 20.
[0156] The values of $0 \sim 7$ are stored in a flag counter. In the mean time, when the winning numbers $0 \sim 7$ are determined, they are stored in a winning number storing area of the RAM 33. The winning number storing area has the same data structure as the flag counter.
[0157] In the followings, it is described a symbol storing area of the RAM 33 of the main control circuit 71 with reference to FIG. 21.
[0158] The data representing types of the symbols displayed in the respective display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ is stored in a symbol storing area, based on the symbol position (or symbol position counter). The symbol storing areas are provided in correspondence with the center line $8 c$, the top line $8 b$, the bottom line $8 d$, the cross-down line $8 e$ and the cross-up line 8 a.
[0159] For example, a type of a symbol located in the central part of the left display window 4 L , a type of a symbol located in the central part of the center display window 4C and a type of a symbol located in the central part of the right display window 4 R are respectively stored in the symbol storing areas corresponding to the center line $8 c$. In the gaming machine 1, a winning is determined, based on the symbol storing areas of the center line $8 c$ and the symbol combination table.
[0160] In addition, the data stored in each of the symbol storing areas consists of 1 byte and corresponds to the data representing the type of the symbol defined in the symbol arrangement table described above. In the mean time, the data representing that the reel is being rotated may be stored in the symbol storing area, which data is expressed by "001111111".
[0161] Herein, in case that an expectation of the display combination is carried out, a type of symbol is specified
which is displayed in the corresponding display window, based on the symbol positions " 0 " $\sim$ " 20 " of the retrieval target reel in succession, and then stored in the corresponding symbol storing area. In addition, when the rotation of the respective reels 3L, 3C, 3R is stopped, a type of symbol which is displayed in the corresponding display window is specified, based on the symbol position counter, and then stored in the corresponding symbol storing area.
[0162] For example, if the retrieval target reel (or stopped reel) is the left reel 3 L and a position of a retrieval target symbol (or symbol position counter of stopped reel) is " 0 ", a type of a symbol of the symbol position " 0 " and types of symbols located at symbol positions (i.e., symbol position " 1 " over one and symbol position " 20 "under one) adjacent to the symbol position " 0 " are specified on the basis of the symbol arrangement table. Accordingly, Bell of the symbol position " 1 " with regard to the upper part of the left reel 3 L , Red 7 of the symbol position " 0 " with regard to the center part thereof and Watermelon of the symbol position " 20 " with regard to the lower part thereof are respectively stored in the symbol storing areas.
[0163] In the followings, it is described an expected display combination storing area of the RAM 33 of the main control circuit 71 with reference to FIG. 22.
[0164] An expected display combination storing is provided with expected display combination storing areas 1 to 3 depending on the number of reels, and stores the priority ranking data determined in accordance with each of the symbol positions " 0 " " 20 " of the retrieval target reel.
[0165] The priority ranking data consists of 1 byte in which the upper 4 bits correspond to the priority ranking of the symbol displayed on the center line $8 c$ and the lower 4 bits correspond to the priority ranking of the symbol displayed on the 4 lines except the center line $8 c$.
[0166] The upper 4 bits and the lower 4 bits have the same data structure. Specifically, 0 (i.e., " 0000 ") corresponds to stop prohibition, 1 (i.e., " 0001 ") corresponds to stop possibility, 2 (i.e., " 0010 ") corresponds to Cherry, 3 (i.e., " 0011 ") corresponds to Watermelon, 4 (i.e., " 0100 ") corresponds to Bell, 5 (i.e., " 0101 ") corresponds to "RB1, RB2, RB3" and 6 (i.e., "0110") corresponds to Replay.
[0167] The priority ranking data is structured such that the greater the value thereof, the higher the priority ranking. Accordingly, by referring to the priority ranking data relating to each symbol position, it is possible to relatively evaluate the priority rankings between the symbols arranged on the periphery of the reel. In addition, the symbol position determined to have the greatest value as the priority ranking data becomes the symbol having the highest priority ranking. Further, it is such treated that the priority ranking corresponding to a symbol which is expressed by the upper 4 bits of 1 byte and displayed on the center line $8 c$ has a higher preferentiality than the priority ranking corresponding to a symbol which is expressed by the lower 4 bits and displayed in the other 4 lines.
[0168] In addition, in the expected display combination storing area, RB1, RB2 and RB3 are grouped to allot one bit string (i.e., bit 6). Thereby, since it is possible to reduce the values taken as the priority ranking data, as compared to a case where one bit string is allotted to each of RB1, RB2 and RB3, the increase of data capacity can be prevented to the utmost.
[0169] Hereinafter, a storing example of an expected display combination storing area is described with reference to FIG. 23A, FIG. 23B.
[0170] FIG. 23A is a storing example of an expected display combination storing area $\mathbf{1}$, in case that the data " 00000000 " is stored in the internal winning combination storing area (i.e., Losing is determined). FIG. 23B is a storing example of an expected display combination storing area 1 , in case that the data " 01000000 " is stored in the internal wimning combination storing area (i.e., RB1 is determined). In the mean time, although the priority ranking data is also stored regarding the respective symbol positions of an expected display combination storing area $\mathbf{2}$ and an expected display combination storing area 3, a storing example thereof is omitted in FIG. 23A, FIG. 23B.
[0171] Hereinafter, a control carried out by the CPU $\mathbf{3 1}$ of the main control circuit 71 is described with reference to flow charts shown in FIGS. 24 to 37.
[0172] First, a RESET-intervention process is described with reference to FIG. 24, which is executed by the CPU 31 of the main control circuit 71. When power is inputted and a voltage is applied to a reset terminal, the CPU $\mathbf{3 1}$ generates a RESET-intervention and sequentially carries out a RESETintervention process which is stored in the ROM 32, on the basis of the generation of the RESET-intervention.
[0173] When the power is inputted, the CPU 31 first executes an initialization process (step S1). In the initialization process, it is carried out a process of restoring an execution address or register data stored in the RAM 33 when the power is cut off.
[0174] Next, the CPU 31 clears an indicated storing area (step S2). Thereby, the data stored in the internal winning combination storing area, etc. of the RAM 33 is cleared.
[0175] Next, the CPU 31 executes a medal receiving start checking process which will be described later with reference to FIG. 25 (step S3). In the medal receiving start checking process, the insertion number counter is updated through the check of the medal sensor 22S, the BET switches $11 \mathrm{~S}, 12 \mathrm{~S}, 13 \mathrm{~S}$ and the like, or the input of the start switch 6 S is checked.
[0176] Next, the CPU $\mathbf{3 1}$ samples a random number value and stores a random number value in the random number value storing area (step S4). Specifically, the CPU 31 samples a random number value for lottery by the random number generator 36 and the sampling circuit 37 , which is used in the internal lottery process and the like, and stores it in the random number value storing area of the RAM 33.
[0177] Next, the CPU 31 executes a gaming status supervisory process (step S5). Specifically, the CPU stores an identifier (so-called flag) representing the RB gaming state in the RAM 33 if the flag under RB operation is ON and stores an identifier representing the normal gaming state in the RAM 33 if the flag under RB operation is OFF.
[0178] Next, the CPU 31 performs an internal lottery process which will be described later with reference to FIG. 26 (step S6). In the internal lottery process, it is carried out a process of determining an internal winning combination and the like. In the mean time, the internal lottery process constitutes a part of the internal winning combination determining means.
[0179] Next, the CPU 31 carries out a reel stop initialization process which will be described later with reference to FIG. 27 (step S7). In the reel stop initialization process, it is performed a process of determining a retrieval parameter table.
[0180] Next, the CPU 31 transmits the start command to the sub-control circuit 72 (step S8). The start command contains data such as internal winning combination, gaming state and the like.
[0181] Next, the CPU 31 determines whether 4.1 seconds have elapsed after a previous reel has started to rotate (step S9). When it is determined that 4.1 seconds have not elapsed, the CPU $\mathbf{3 1}$ consumes the waiting time (step S10). Specifically, the CPU 31 carries out a waiting process without performing the subsequent processes until 4.1 seconds have elapsed.
[0182] When it is determined that 4.1 seconds have elapsed, or after the process in the step S10, the CPU $\mathbf{3 1}$ requests rotation start of all the reels (step S11). When it is requested the rotation of all the reels, a process of starting to rotate the reels is carried out in an intervention process (see FIG. 37) which will be described later.
[0183] Next, the CPU 31 executes a reel stop control process which will be described later with reference to FIG. 32 (step S12). In the reel stop control process, it is carried out a process of stopping the rotation of the reel $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$. In the mean time, the reel stop control process constitutes a part of the reel stop means.
[0184] Next, the CPU 31 carries out a display combination retrieving process which will be described later with reference to FIG. 31 (step S13). In this display combination retrieving process, it is referred to the data stored in the symbol storing area of the center line $8 c$ and it is carried out a process of determining a type of a display combination and a payout number, based on the symbol combination table. In the mean time, the display combination retrieving process in the step S 13 constitutes a part of the winning determining means.
[0185] Next, the CPU 31 transmits a display combination command to the sub-control circuit 72 (step S14). The display combination command contains data such as display combination made and the like.
[0186] Next, the CPU 31 carries out a medal payout process (step S15). Specifically, the CPU 31 controls the hopper $\mathbf{4 0}$ or updates the credit counter, based on the payout number determined in the step S13.
[0187] Next, the CPU 31 determines whether the flag under RB operation is ON or not (step S16). When it is determined that the flag under RB operation is ON, the CPU 31 carries out a bonus end checking process which will be described later with reference to FIG. 36 (step S17). In the bonus end checking process, it is carried out a process of ending the RB operation, based on the update result of the possible winning-number counter or possible game-number counter.
[0188] When it is determined that the flag under RB operation is not ON in the step of S16, or after the process in the step S17, the CPU $\mathbf{3 1}$ carries out a bonus operation checking process which will be described with reference to FIG. 35 (step S18). In the bonus operation checking process,
it is carried out a process of starting an operation of RB when a display combination is one of RB1, RB2 and RB3.
[0189] Like this, the CPU 31 executes the steps S2 to S18 as processes in a unit game. When the step S18 is over, the CPU proceeds to the step S 2 so as to carry out the processes in a next unit game.
[0190] In the followings, a medal receiving start checking process is described with reference to FIG. 25
[0191] First, the CPU 31 determines whether it is under insertion process (step S51). Specifically, the CPU 31 determines that it is under insertion process when the medal sensor 22 S or the BET switches $11 \mathrm{~S}, \mathbf{1 2 S}, \mathbf{1 3 S}$ is ON . In addition, in case that the BET switches 11S, 12S, 13S are ON, the CPU 31 calculates a value to be added to the insertion number counter for counting the insertion number, based on types of the BET switches $\mathbf{1 1 S}, \mathbf{1 2 S}, \mathbf{1 3 S}$, the insertion number counter for counting the insertion number and a credit counter for counting the number of medals credited.
[0192] When it is determined as the insertion process in the step S51, the CPU 31 updates the insertion number counter (step S52). Meanwhile, in this process, when it is prohibited the addition of the insertion number counter, the CPU 31 updates the credit counter, instead of the insertion number counter.
[0193] Next, the CPU 31 transmits the BET command to the sub-control circuit 72 (step S53). The BET command contains the data of insertion number, etc. Continuously, the CPU 31 determines whether the flag under RB operation is ON or not (step S54). When it is determined that the flag under RB operation is not ON, the CPU 31 determines whether the insertion number counter is 3 or not (step S55).
[0194] When it is determined that the insertion number counter is 3 in the step $\mathbf{S 5 5}$, or when it is determined that the flag under RB operation is ON in the step S54, the CPU prohibits the addition of the insertion number counter (step S56).
[0195] After the process in the step S56, when it is determined that it is not under insertion process in the step S51 or when it is determined that the insertion number counter is not 3 in the step S55, the CPU $\mathbf{3 1}$ determines whether the insertion number counter is 1 or more (step S57). If it is determined that the insertion number counter is not 1 or more, the CPU 31 proceeds to the step S51.
[0196] When it is determined that the insertion number counter is 1 or more in the step S57, the CPU $\mathbf{3 1}$ determines whether the start switch 6 S is ON or not (step S58). When it is determined that the start switch 6 S is not ON , the CPU 31 proceeds to the step S51. In addition, when it is determined that the start switch 6 S is ON , the CPU 31 ends the medal receiving start checking process and proceeds to the step S4 in FIG. 24.
[0197] In the followings, an internal lottery process is described with reference to FIG. 26.
[0198] First, the CPU 31 determines a type of the internal lottery table and the number of lotteries, based on the gaming state and the internal lottery table determining table (step S91).
[0199] Next, the CPU 31 determines whether the internal carryover combination storing area is 0 or not (i.e., whether there is an internal carryover combination) (step S92). When it is determined that the internal carryover combination storing area is not 0 , the CPU 31 changes the number of lotteries into 4 (step S93). Thereby, when there is an internal carryover combination in the normal gaming state, the number of lotteries determined to be 7 times is changed to 4 times and RB is not duplicately determined.
[0200] When it is determined that the internal carryover combination storing area is 0 in the step S92, or after the process in the step S 93 , the CPU $\mathbf{3 1}$ sets a value same as the number of lotteries, as a winning number (step S94).
[0201] Next, the CPU 31 compares the random number value stored in the random number value storing area with the lowest limit defined in the internal lottery table determined (step S95). Then, the CPU 31 determines whether the random number value is the lowest limit or more (step S96).
[0202] When it is determined that the random number value is the lowest limit or more, the sub-CPU 81 compares the random number value stored in the random number value storing area with the upper limit defined in the internal lottery table determined (step S97). Then, the CPU 31 determines whether the random number value is the upper limit or less (step S98).
[0203] When it is determined that the random number value is the upper limit or less, the CPU 31 stores the set winning number in a winning number storing area of the RAM 33 (step S99). The winning number storing area has an initial value of 0 and is sequentially overwritten as this process is carried out. In addition, since the winning numbers are retrieved in descending power from the greater values, when the winning numbers are duplicately determined, the smaller winning number is preferentially stored
[0204] Next, the CPU 31 refers to the internal winning combination determining table to determine an internal winning combination, based on the winning number stored in the winning number storing area (step S100). Then, the CPU 31 takes a logical product of the determined internal winning combination and bonus check data and stores a logical sum with a result thereof and the internal carryover combination storing area in the internal carryover combination storing area (step S101). The bonus check data is expressed by " 01110000 ". As a result of this process, in case that the internal winning combination is RB, a carryover of RB is carried out.
[0205] Next, the CPU 31 stores a logical sum of the internal winning combination and the internal carryover combination storing area in the internal winning combination storing area (step S102). For example, in case that Bell is determined when RB3 is carried over, the data of the internal winning combination storing area is " 00010010 ".
[0206] After the process in the step S102, when it is determined that the random number value is not the lowest limit or more in the step S96, or when it is determined that the random number value is not the upper limit or less in the step S98, the CPU 31 subtracts 1 from the number of lotteries (step S103).
[0207] Next, the CPU 31 determines whether the number of lotteries is 0 or not (i.e., whether the retrieval for all the
winning numbers is ended or not) (step S104). When it is determined that the number of lotteries is not 0 , the CPU 31 proceeds to the step S94.
[0208] When it is determined that the number of lotteries is 0 in the step S104, the CPU 31 refers to the internal winning combination determining table to determine an internal winning combination, based on the winning number (step S105). In this process, in case that the initial value $\mathbf{0}$ is stored in the winning number storing area, the losing is determined.
[0209] Next, the CPU takes a logical product of the determined internal winming combination and the bonus check data (i.e., 01110000 ), and stores a logical sum with a result thereof and the internal carryover combination storing area in the internal carryover combination storing area (step S106). Then, the CPU 31 stores a logical sum of the internal winning combination and the internal carryover combination storing area in the internal winning combination storing area of the RAM 33 (step S107). When this process is over, the CPU ends the internal lottery process and proceeds to the step S7 in FIG. 24.
[0210] In the followings, a reel stop initialization process is described with reference to FIG. 27.
[0211] First, the CPU 31 copies the data of the internal winning combination storing area into the area for storing a winning combination for reel-stop (step S111). Next, the CPU 31 determines whether at least one of the bits $\mathbf{4 \sim 6}$ (i.e., RB3, RB2, RB1) of the area for storing a winning combination for reel-stop is ON or not (step S112).
[0212] When it is determined that at least one of the bits 4~6 of the area for storing a winning combination for reel-stop is ON, the CPU $\mathbf{3 1}$ makes the bit 1 (i.e., Bell) of the area for storing a winning combination for reel-stop ON (step S113). In other words, when any one of RB1, RB2 and RB3 is determined as an internal winning combination, Bell is stored as a winning combination for reel-stop, in addition to it. In the mean time, RB1, RB2, RB3 are examples of a predetermined internal winning combination. In addition, a combination of symbols relating to Bell is an example of a combination of specific symbols.
[0213] Next, the CPU 31 determines whether the winning number stored in the winning number storing area is 0 (i.e., losing) (step S114). When it is determined that the winning number stored in the winning number storing area is 0 , the CPU 31 determines whether the area for storing a winning combination for reel-stop is 0 or not (step S115).
[0214] When it is determined that the area for storing a winning combination for reel-stop is 0 in the step S115, or when it is determined that the winning number is not 0 in the step S 114 , the CPU 31 stores the data of the winning number storing area in the flag counter (step S116). For example, when the data of the winning number storing area is " 3 ", the CPU stores " 3 " in the flag counter.
[0215] When it is determined that the area for storing a winning combination for reel-stop is not 0 in the step S115, the CPU 31 numbers the data of the area for storing a winning combination for reel-stop and stores it in the flag counter (step S117). Specifically, when the bit 4 is ON, the CPU 31 stores 5 , when the bit 5 is ON, the CPU stores $\mathbf{6}$, and when the bit 6 is ON, the CPU stores 7.
[0216] After the process in the step S117 or step S116, the CPU 31, based on the flag counter stored and the reel stop initialization table, determines and stores a retrieval parameter table in the RAM 33 (step S118).
[0217] Next, the CPU 31 stores the identifier being rotated in all the symbol storing areas (step S119). Specifically, the CPU 31 sets all the bits $\mathbf{0}$ to $\mathbf{6}$ in all the symbol storing areas to be " 1 ".
[0218] Next, the CPU carries out an expected display combination storing process which will be described with reference to FIG. 28 (step S120). In this expected display combination storing process, the CPU carries out an process of determining priority rankings in accordance with the symbols of the symbol positions " 0 " $\sim$ " 20 " in the respective reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$, before all the reels start to rotate. When this process is over, the CPU ends the reel stop initialization process and proceeds to the step S8 in FIG. 24.
[0219] In the followings, an expected display combination storing process is described with reference to FIG. 28.
[0220] First, the CPU 31 stores the number of the stop buttons $7 \mathrm{~L}, 7 \mathrm{C}, 7 \mathrm{R}$ for which the push operation is not carried out in the RAM 33, as the number of display combination retrievals (step S131). Before all the reels start to rotate, 3 is stored as the number of display combination retrievals.
[0221] Next, the CPU 31 sets a leading address of the expected display combination storing area 1 (step S132). Specifically, a leading address of the symbol position " 0 " of the expected display combination storing area 1 is set. Then, the CPU $\mathbf{3 1}$ sets " 21 " as the number of symbol checks and " 0 " as the symbol position (step S133).
[0222] Next, the CPU 31 retrieves the reel being rotated from the right side, based on the number of display combination retrievals, and stores it as a retrieval target reel (step S134). Specifically, all the reels being rotated are retrieved, so that the left reel 3 L , the center reel 3 C and the right reel 3 R are sequentially stored as the retrieval target reel, from the reel which is being rotated and nearer at the left side. For example, if the number of display combination retrievals is 3, the left reel 3L is determined first of all.
[0223] Next, the CPU 31 updates the symbol storing area, based on the retrieval target reel and the symbol position (step S135). Specifically, based on the retrieval target reel, the symbol position and the symbol arrangement table, a type of the symbol of the corresponding symbol position and types of the symbols of the symbol positions adjacent to the corresponding symbol position are stored in the symbol storing areas.
[0224] Next, the CPU 31 sets a leading address of the top line of the symbol storing area and sets 4 as the number of checks (step S136).
[0225] Next, the CPU 31 carries out a display checking process which will be described with reference to FIG. 30 (step S137). In the display checking process in the step S137, it is referred to the data stored in the symbol storing areas of the 4 lines except the center line $8 c$, and it is carried out a process of retrieving a combination of symbols which can be displayed on the 4 lines except the center line $8 c$, based on the symbol combination table for stop-control. In
the mean time, the display checking process in the step S137 constitutes a part of second symbol determining means.
[0226] Next, the CPU 31 copies the data of the display combination storing area stored in the display checking process to a pseudo display combination storing area and clears the display combination storing area (step S138).
[0227] Next, the CPU 31 carries out a display combination retrieving process which will be described with reference to FIG. 31 (step S139). In the display combination retrieving process, it is referred to the data stored in the symbol storing area of the center line $8 c$, and it is carried out a process of retrieving a combination of symbols which can be displayed on the center line $8 c$, based on the symbol combination table for stop-control. In the mean time, the display combination retrieving process in the step S 139 constitutes a part of first symbol determining means.
[0228] Next, the CPU 31 sets the data of the display combination storing area stored in the step S139 into a HL register and sets the data of the internal winning combination storing area into a DE register (step S140).
[0229] Next, the CPU 31 carries out a priority ranking checking process which will be described with reference to FIG. 29 (step S141). In the priority ranking checking process, the priority ranking is determined, based on the expectation of the display combination carried out with regard to the center line $8 c$. In the mean time, the priority ranking checking process in the step S141 constitutes a part of the first symbol determining means.
[0230] Next, the CPU 31 shifts the priority ranking data set in the step S141 to the upper 4 bits and evacuates it (step S142). For example, when the priority ranking data is " 00000001 ", the evacuated data becomes " 00010000 ".
[0231] Next, the CPU $\mathbf{3 1}$ sets the data of the pseudo display combination storing area into the HL register and sets the data of the area for storing a winning combination for reel-stop into the DE register (step S143).
[0232] Next, the CPU 31 carries out a priority ranking checking process which will be described with reference to FIG. 29 (step S144). In the priority ranking checking process, the priority ranking is determined, based on the expectation of the display combination carried out with regard to the 4 line except the center line $8 c$. In the mean time, the priority ranking checking process in the step S144 constitutes a part of the second symbol determining means.
[0233] Next, the CPU 31 stores a logical sum of the priority ranking data evacuated in the step S142 and the priority ranking data set in the step S144 into the display combination storing area (step S145).
[0234] Next, the CPU clears the display combination storing area and updates the address of the expected display combination storing area (step S146). For example, in case of the address of the symbol position " 0 " of the expected display combination storing area, the address is changed into an address of the symbol position " 1 ". Then, the CPU 31 adds 1 to the symbol position and subtracts 1 from the number of checks (step S147).
[0235] Next, the CPU $\mathbf{3 1}$ determines whether the number of symbol checks is 0 or not (step S148). When it is
determined that the number of symbol checks is not 0 , the CPU $\mathbf{3 1}$ proceeds to the step S134.
[0236] When it is determined that the number of symbol checks is 0 in the step S148, the CPU 31 copies the data of the symbol positions $0 \sim 3$ (step $\mathbf{S 1 4 9}$ ). Thereby, it is possible to rapidly carry out a retrieving process of a priority attrac-tion-in control process which will be described later. Then, the CPU 31 subtracts 1 from the number of display combination retrievals (step S 150 ).
[0237] Next, the CPU 31 determines whether the number of display combination retrievals is 0 or not (step S151). When it is determined that the number of display combination retrievals is 0 , the CPU 31 ends the expected display combination storing process and then proceeds to the step S8 in FIG. 24 or a step S211 in FIG. $\mathbf{3 2}$ which will be described later.
[0238] When it is determined that the number of display combination retrievals is not 0 in the step S151, the CPU 31 updates the address of the expected display combination storing area and stores the identifier being rotated in the respective symbol storing areas (step S152). The process of updating the address of the expected display combination storing area is carried out in order of the expected display combination storing area 1 , the expected display combination storing area 2 and the expected display combination storing area 3.
[0239] Next, the CPU 31 updates the symbol storing area corresponding to the reel stopped (step S153). Specifically, the CPU updates the symbol storing area, based on the symbol position counter of the reel stopped and the symbol arrangement table. When this process is over, the CPU proceeds to the step S133 in FIG. 28.
[0240] In the mean time, the expected display combination storing process constitutes a part of priority ranking determining means for determining a priority ranking (for example, priority ranking data), based on a symbol displayed in a predetermined area (for example, center line $8 c$ ), a symbol displayed in another area different from the predetermine area (for example, top line $8 b$, bottom line $8 d$, cross-up line $8 a$ and cross-down line $8 e$ ) and an internal winning combination determined by the internal winning combination determining means, for each of the symbols arranged on the reels (for example, symbol positions " 0 "~" 20 ").
[0241] In the followings, a priority ranking checking process is described with reference to FIG. 29.
[0242] First, the CPU $\mathbf{3 1}$ sets 0 as an initial value of the priority ranking data (step S161). Since the priority ranking data is expressed by 1 byte, its initial value is " 00000000 ".
[0243] Next, the CPU 31 determines whether the number of stop buttons for which the push operation is active is one (step S162). When it is determined that the number of stop buttons for which the push operation is active is one, the CPU 31 determines whether all the bits $\mathbf{0}$ to $\mathbf{2}$ of the display combination storing area are 0 or not (step S163). When it is determined that all the bits $\mathbf{0}$ to $\mathbf{2}$ of the display combination storing area are not 0 , the CPU 31 determines whether all the bits $\mathbf{3}$ to $\mathbf{6}$ of the display combination storing area are 0 or not (step S164). When it is determined that all the bits 3 to $\mathbf{6}$ of the display combination storing area are not 0 , the

CPU 31 ends the priority ranking checking process and proceeds to the step S142 or step S145 in FIG. 28.
[0244] When it is determined that the number of stop buttons for which the push operation is active is not one in the step S162, when it is determined that all the bits 0 to 2 of the display combination storing area are 0 in the step S163, or when it is determined that all the bits $\mathbf{3}$ to $\mathbf{6}$ of the display combination storing area are 0 in the step S140, the CPU 31 takes an exclusive logical sum of the DE register and the HL register and then takes a logical product of a result thereof and the HL register (step S165). Through the process, it is clarified whether there is a bit which is ON in the display combination storing area (or pseudo display combination storing area) only. From this, it is clarified whether the display combination (or pseudo display combination) is included in the internal winning combination (or winning combination for reel-stop), i.e., whether the symbol position at this time satisfies the determined internal winning combination (or winning combination for reel-stop).
[0245] Next, the CPU 31 determines whether all the bits 0 to $\mathbf{2}$ are 0 or not (step S166). When it is determined that all the bits $\mathbf{0}$ to $\mathbf{2}$ are not 0 , the CPU 31 determines whether the bit $\mathbf{0}$ is ON or not (step S167). When it is determined that the bit $\mathbf{0}$ is ON , the CPU $\mathbf{3 1}$ ends the priority ranking checking process and then proceeds to the step S142 or step S145 in FIG. 28.
[0246] When it is determined that all the bits $\mathbf{0}$ to $\mathbf{2}$ are 0 in the step S166, the CPU $\mathbf{3 1}$ determines whether all the bits 3 to $\mathbf{6}$ are 0 or not (step S168). When it is determined that all the bits 3 to 6 are not 0 in the step S168, or when it is determined that the bit $\mathbf{0}$ is not ON in the step S167, the CPU 31 determines whether the number of stop buttons for which the push operation is active is one or not (step S169). When it is determined that the number of stop buttons for which the push operation is active is one, the CPU $\mathbf{3 1}$ ends the priority ranking checking process and then proceeds to the step S142 or step S145 in FIG. 28.
[0247] When it is determined that the number of stop buttons for which the push operation is active is not one, or when it is determined that all the bits $3 \sim 6$ are 0 in the step S168, the CPU 31 sets " 1 " as an initial value of the priority ranking and sets " 5 " as the number of checks (step S170).
[0248] Next, the CPU 31 obtains the attraction-in data of a current priority ranking, based on the priority attraction-in ranking table (step S171). Next, the CPU 31 takes a logical product of the DE register, the HL register and the attractionin data (step S172). Though this process, it is clarified whether the display combination is included in the internal winning combination (or winning combination for reel-stop) and whether it is matched to the attraction-in data of this priority ranking.
[0249] Next, the CPU 31 determines whether the logical product is 0 or not (step S173). When it is determined that the logical product is 0 , the CPU 31 adds 1 to the priority ranking and subtracts 1 from the number of checks (step S174). Then, the CPU 31 determines whether the number of checks is 0 or not (step S175). When it is determined that the number of checks is not 0 , the CPU 31 proceeds to the step S171.
[0250] When it is determined that the number of checks is 0 in the step $\mathbf{S 1 7 5}$, or when it is determined that the logical
product is not 0 in the step $\mathbf{S 1 7 3}$, the CPU $\mathbf{3 1}$ calculates an equation of "the number of checks +1 " and sets it as the priority ranking data (step S 176 ). For example, when the number of checks is " 3 ", " 4 ", i.e., " 00000100 " is set as the priority ranking data. When this process is over, the CPU ends the priority ranking checking process and then proceeds to the step S142 or step S145 in FIG. 28.
[0251] In the followings, a display checking process is described with reference to FIG. 30.
[0252] First, the CPU 31 determines whether the number of display combination retrievals is 0 or not (step S181). When it is determined that the number of display combination retrievals is 0 in the step S181, the CPU 31 sets a leading address of the symbol combination table (step S182). When it is determined that the number of display combination retrievals is not 0 in the step S181, the CPU 31 sets a leading address of the symbol combination table for stop-control (step S183).
[0253] After the process in the step S182 or step S183, the CPU 31 compares it with combinations of symbols stored in the three symbol storing areas corresponding to the respective reels (step S184). In other words, it is carried out the comparison with the combination of symbols corresponding to the current address of the symbol combination table (or symbol combination table for stop-control).
[0254] Next, the CPU 31 determines whether it is matched or not except the symbol storing area in which the identifier being rotated is stored (step S185). Specifically, it is carried out the check on the area corresponding to the left reel 3 L , the area corresponding to the center reel 3C and the area corresponding to the right reel 3 R . When it is determined that it is matched except the symbol storing area in which the identifier being rotated is stored in the step S185, the CPU 31 determines a display combination and stores a logical sum of the determined display combination and the display combination storing area in the display combination storing area (step S186).
[0255] Next, the CPU 31 determines whether the number of display combination retrievals is 0 or not (step S187). When it is determined that the number of display combination retrievals is 0 , the CPU 31 refers to the symbol combination table, determines the payout number, based on the determined display combination, and updates the payout number counter (step S188).
[0256] After the step S188, when it is determined that it is not matched except the symbol storing area in which the identifier being rotated is stored in the step $\mathrm{S} \mathbf{1 8 5}$, or when it is determined that the number of display combination retrievals is not 0 in the step S187, the CPU 31 updates the address of the symbol combination table (or symbol combination table for stop-control) (step S189). Specifically, the address is sequentially updated from Cherry to RB1
[0257] Next, the CPU 31 determines whether it is checked all the combinations of symbols defined in the symbol combination table (or symbol combination table for stopcontrol) (step S190). When it is determined that it is not checked all the combinations of symbols, the CPU 31 proceeds to the step S184.
[0258] When it is determined that it is checked all the combinations of symbols in the step S190, the CPU $\mathbf{3 1}$
subtracts 1 from the number of checks (step S191). Then, the CPU 31 determines whether the number of checks is 0 or not (step S192). When it is determined that the number of checks is 0 , the CPU 31 ends the display checking process and proceeds to the step S138 or step S140 in FIG. 28.
[0259] When it is determined that the number of checks is not 0 in the step S192, the CPU $\mathbf{3 1}$ adds the address of the symbol storing area (step S193). Specifically, the address of the symbol storing area is updated in order of the top line $8 b$, the bottom line $8 d$, the cross-down line $8 e$ and the cross-up line $8 a$.
[0260] In the followings, a display combination retrieving process is described with reference to FIG. 31.
[0261] First, the CPU 31 sets a leading address of the symbol storing area of the center line $8 c$ and sets 1 as the number of checks (step S201). Then, the CPU 31 carries out the display checking process (see FIG. 30) (step S202). In the display checking process of the step S202, it is referred to the data stored in the symbol storing area of the center line $8 c$ and it is carried out a process of retrieving a combination of symbols to be displayed on the center line $\mathbf{8} c$, based on the symbol combination table for stop-control (or symbol combination table). When this process is over, the CPU ends the display combination retrieving process and proceeds to the step S140 in FIG. 28 or the step S14 in FIG. 24.
[0262] In the followings, a reel stop control process is described with reference to FIG. 32.
[0263] First, the CPU 31 determines whether an active stop button is pushed or not (step S211). When it is determined that the active stop button is not pushed, the CPU 31 repeats the process in the step S211. In the mean time, the CPU 31 may determine whether a predetermined time (for example, 30 sec ) has elapsed after the start switch $\mathbf{6 S}$ has been ON while determining whether the active stop button is pushed (in order to carry out a so-called automatic stop).
[0264] When it is determined that the active stop button is pushed in the step S211, the CPU 31 specifies the type of the stop button for which the push operation is carried out, annuls the push operation for the corresponding stop button and carries out a priority attraction-in control process which will be described with reference to FIG. 33 (step S212). In the priority attraction-in control process, it is compared the priority ranking data relating to all the symbol positions within a range of 4 symbols from the symbol position corresponding to the symbol position counter at the time when the push operation is detected on the basis of the expected display combination storing area, and then the symbol position having the highest priority ranking is determined as an expected stop position. In the mean time, the priority attraction-in control process constitutes a part of priority ranking comparison means for comparing the priority rankings related to each of the symbols ranging from a symbol specified by the symbol specifying means to symbols within a predetermined range (for example, within a range of 4 symbols) when the stop operation is detected by the stop operation detection means.
[0265] Next, the CPU 31 transmits a reel stop command to the sub-control circuit 72 (step S213). The reel stop command includes data of the type of the stopped reel, and the like. Then, the CPU $\mathbf{3 1}$ updates the symbol storing area corresponding to the reel stopped (step S214). For example,
after all the reels are stopped, the types of all the symbols displayed in the display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ are specified, based on the symbol position counters of all the reels, and stored in all the symbol storing areas.
[0266] Next, the CPU 31 determines whether there is the stop button for which the push operation is not carried out (step S215). When it is determined that there is no the stop button for which the push operation is not carried out, the CPU 31 ends the reel stop control process and proceeds to the step S13 in FIG. 24.
[0267] When it is determined that there is the stop button for which the push operation is not carried out in the step S 215 , the CPU 31 carries out the expected display combination storing process (see FIG. 28) (step S216). In this expected display combination storing process, it is carried out a process of determining the priority ranking every symbol of the respective symbol positions, with regard to the reel being rotated except the reel stopped at this time. When this process is over, the CPU proceeds to the step S211.
[0268] In the followings, a priority attraction-in control process is described with reference to FIG. 33.
[0269] First, the CPU 31 determines the retrieval status data, based on the retrieval parameter table and the symbol position counter of the corresponding reel (i.e., reel corresponding to the type of the stop button whose stop operation is detected) (step S231).
[0270] Next, the CPU 31 determines and stores the type of the retrieval order table, based on the retrieval status data (step S232). Specifically, the leading address of the determined retrieval order table is stored in the RAM 33.
[0271] Next, the CPU 31 carries out a process of selecting an expected display combination storing area which will be described with reference to FIG. 34 (step S233). In the process of selecting an expected display combination storing area, it is selected an expected display combination storing area in accordance with the type or the number of reels being rotated.
[0272] Next, the CPU 31 retrieves and stores an address of the expected display combination storing area corresponding to the symbol position counter of the corresponding reel (step S234). In other words, an address of the expected display combination storing area of the stop starting position is stored in the RAM 33.
[0273] Next, the CPU 31 sets 5 as the number of checks (step S235). In addition, in this process, a predetermined register in which the priority ranking data is evacuated and a specific register in which the number of sliding symbols is evacuated are cleared.
[0274] Next, the CPU 31 samples the number of sliding symbols corresponding to the retrieval order having the same value as the number of checks, based on the retrieval order table stored (step S236). Thereby, it is possible to sample the number of sliding symbols corresponding, in descending power from the retrieval order 5.
[0275] Next, the CPU 31 sets an address of the expected display combination storing area stored and adds the number of sliding symbols to the set address (step S237). For example, if the symbol counter is 16 and the number of
sliding symbols is 4 , it is obtained an address corresponding to the symbol position 20 of the expected display combination storing area.
[0276] Next, the CPU 31 subtracts the evacuated data from the data of the current expected display combination storing area (step S238). Through this process, it is clarified whether the priority ranking data of the current expecteddisplay combination storing area is greater than the evacuated priority ranking data (i.e., whether the priority ranking is higher). In the mean time, when the number of checks is 5 , the evacuated data is 0 which is an initial value.
[0277] Next, the CPU 31 determines whether an underflow is carried out or not (step S239). When it is determined that the underflow is not carried out, i.e., when it is determined that the priority ranking data of the current expected display combination storing area is equal to or greater than the evacuated priority ranking data, the CPU 31 evacuates the priority ranking data of the current expected display combination storing area to a predetermined register (step S240). Then, the CPU 31 evacuates the number of sliding symbols to a specific register (step S241).
[0278] After the process in the step S241 or when it is determined that the underflow is carried out, the CPU 31 subtracts 1 from the number of checks (step S242). Then, the CPU 31 determines whether the number of checks is 0 or not (step S243). When it is determined that the number of checks is not 0 , the CPU 31 proceeds to the step S236.
[0279] When it is determined that the number of checks is 0 in the step S243, the CPU $\mathbf{3 1}$ restores the number of sliding symbols evacuated in the specific register to determine the number of sliding symbols (step S244). Then, the CPU 31 determines and stores an expected stop position, based on the symbol position counter and the number of sliding symbols determined (step S245). For example, in case that the symbol counter is " 16 " and the number of sliding symbols is 3 , " 19 " is determined as the expected stop position and stored in the RAM 33. In addition, when the expected stop position is stored, it is carried out a process of stopping the reels being rotated in an intervention process (see FIG. 37) which will be described later, based on the corresponding expected stop position. In the mean time, if one of the number of sliding symbols and the expected stop position is determined, the other is determined. Accordingly, it can be said that they have an equivalent relationship. When this process is over, the CPU ends the priority attraction-in control process and proceeds to the step S213 in FIG. 32.
[0280] In the followings, it is described a process of selecting an expected display combination storing area with reference to FIG. 34.
[0281] First, the CPU 31 determines whether it is the third stop operation or not (step S261). When it is determined that it is not the third stop operation, the CPU 31 determines whether it is the second stop operation or not (step S262). When it is determined that it is the second stop operation, the CPU 31 determines whether the right reel 3 R is being rotated or not (step S263). When it is determined that the right reel 3 R is not being rotated, the CPU 31 determines whether the center reel 3 C is being rotated and the stop operation is the push operation for the left stop button 7L (step S264).
[0282] When it is determined that the center reel 3C is being rotated and the stop operation is the push operation for
the left stop button 7L in the step S264, when it is determined that the right reel 3 R is being rotated in the step S 263 , or when it is determined that it is the third stop operation in the step S231, the CPU 31 sets the expected display combination storing area $\mathbf{1}$ (step S265). When this process is over, the CPU ends the process of selecting an expected display combination storing area and then proceeds to the step S234 in FIG. 33.
[0283] When it is determined that the center reel 3C is being rotated and the stop operation is not the push operation for the left stop button 7L in the step S264, the CPU $\mathbf{3 1}$ sets the expected display combination storing area $\mathbf{2}$ (step S266). When this process is over, the CPU ends the process of selecting an expected display combination storing area and then proceeds to the step S234 in FIG. 33.
[0284] When it is determined that it is not the second stop operation in the step S262, the CPU 31 determines whether or not the stop operation is the push operation for the left stop button 7L (step S267). When it is determined that the stop operation is the push operation for the left stop button 7L, the CPU 31 sets the expected display combination storing area $\mathbf{1}$ (step S268). When this process is over, the CPU ends the process of selecting an expected display combination storing area and then proceeds to the step S234 in FIG. 33.
[0285] When it is determined that the stop operation is not the push operation for the left stop button 7L in the step S267, the CPU 31 determines whether or not the stop operation is the push operation for the center stop button 7C (step S269). When it is determined that the stop operation is the push operation for the center stop button 7C, the CPU 31 sets the expected display combination storing area 2 (step S270). When this process is over, the CPU ends the process of selecting an expected display combination storing area and then proceeds to the step S234 in FIG. 33.
[0286] When it is determined that the stop operation is not the push operation for the center stop button 7C in the step S269, the CPU 31 sets the expected display combination storing area 3 (step S271). When this process is over, the CPU ends the process of selecting an expected display combination storing area and then proceeds to the step S234 in FIG. 33. Like this, the expected display combination storing areas $\mathbf{1 , 2}$ and $\mathbf{3}$ are sequentially selected, from the reel which is being rotated and nearer at the left side.
[0287] In the followings, a bonus operation checking process is described with reference to FIG. 35.
[0288] First, the CPU 31 determines whether the display combination is one of RB1, RB2 and RB3 (step S281). When it is determined that the display combination is not any one of RB1, RB2 and RB3, the CPU 31 ends the bonus operation checking process and then proceeds to the step S2 in FIG. 24.
[0289] When it is determined that the display combination is one of RB1, RB2 and RB3 in the step S281, the CPU 31 carries out the process on RB operation, based on the table on bonus operation (step S282). Then, the CPU $\mathbf{3 1}$ clears the internal carryover combination storing area (step S283). When this process is over, the CPU ends the bonus operation checking process and then proceeds to the step S2 in FIG. 24.
[0290] In the followings, a bonus end checking process is described with reference to FIG. 36.
[0291] First, the CPU 31 determines whether a winning is established or not (step S291). When it is determined that the winning is established, the CPU 31 subtracts 1 from the possible winning-number counter (step S292). Then, the CPU 31 determines whether the possible winning-number counter is 0 or not (step S293).
[0292] When it is determined that the possible winningnumber counter is not 0 in the step S293, or when it is determined that a winning is not established in the step S291, the CPU 31 subtracts 1 from the possible gamenumber counter (step S294). Then, the CPU $\mathbf{3 1}$ determines whether the possible game-number counter is 0 or not (step S295). When it is determined that the possible game-number counter is not 0 , the CPU 31 ends the bonus end checking process and then proceeds to the step S18 in FIG. 24.
[0293] When it is determined that the possible gamenumber counter is 0 in the step $\mathbf{S 2 9 5}$, or when it is determined that the possible winning-number counter is in the step S293, the CPU 31 carries out a process on RB ending (step S296). In the process on RB ending, the respective data stored at the time when the RB is operated is cleared. When this process is over, the CPU ends the bonus end checking process and then proceeds to the step S18 in FIG. 24.
[0294] In the followings, it is described an intervention process having a period of 1.1173 ms which is carried out under control of the CPU 31 of the main control circuit 71, with reference to FIG. 37.
[0295] First, the CPU 31 evacuates a register (step S301). Next, the CPU 31 checks an input port (step S302). Specifically, the CPU $\mathbf{3 1}$ checks signal inputs from each switch and the like.
[0296] Next, the CPU 31 carries out a reel control process (step S303). Specifically, in case that it is a request for rotation start of the reel, the CPU 31 starts to rotate the reels 3L, 3C, 3R and carries out the rotation at a constant speed. In addition, in case that the expected stop position is stored, the CPU waits until the symbol position counter of the corresponding reel is updated to the same value as the expected stop position, and then stops the rotation of the corresponding reel. For example, if the symbol counter is " 16 " and the expected stop position is " 19 ", the CPU stops the rotation of the reel when symbol counter is updated to "19". In the mean time, the reel control process constitutes a part of reel rotating means. In addition, the reel control process constitutes a part of reel stop means. Further, the reel stop means stops the rotation of reel when the symbol having the highest priority ranking as a result of the comparison carried out by the priority ranking comparison means reaches a predetermined position.
[0297] Next, the CPU 31 performs a lamp 7SEG driving process (step S304). Specifically, the CPU 31 turns on the BET lamps $9 a, 9 b, 9 c$ in accordance with the insertion number counter and displays the payout number on the information display unit 18, etc.
[0298] Next, the CPU 31 carries out a restore of the register (step S 305 ). When this process is over, the CPU ends the intervention process having a period of 1.1173 ms .
[0299] In the followings, it is specifically described a process from after an internal winning combination is determined until the priority ranking data is stored in the expected display combination storing area, based on the descriptions of FIGS. 26 to 31.
[0300] First, in the internal lottery process (see FIG. 26), in case that there is no internal carryover combination and the winning number 7 (i.e., RB1) is determined, the data " 01000000 " is stored in the internal winning combination storing area.
[0301] In the reel stop initialization process (see FIG. 27), the data " 01000000 " stored in the internal winning combination storing area is copied to the area for storing a winning combination for reel-stop. Since the bit 6 (i.e., RB1) of the area for storing a winning combination for reel-stop is ON, the bit 1 (i.e., Bell) becomes ON and the area for storing a winning combination for reel-stop becomes " 010000010 ".
[0302] In the expected display combination storing process (see FIG. 28), since no stop button has not been pushed, 3 is stored as the number of display combination retrievals. In addition, it is set the address of the symbol position " 0 " of the expected display combination storing area 1 and the left reel 3 L is stored as the retrieval target reel.
[0303] Subsequently, the symbol arrangement table (see FIG. 4) is referred to, so that the symbol type of the symbol position " 0 " of the left reel 3L, the symbol type of the symbol position " 1 " over one regarding the symbol position " 0 " and the symbol type of the symbol position " 20 " under one regarding the symbol position " 0 " are specified and respectively stored in the symbol storing area. In other words, Bell, Red 7 and Watermelon are respectively stored with regard to the upper, central and lower parts of the left reel 3L of the symbol storing area. In the mean time, the identifier being rotated is stored in the symbol storing area except the left reel 3 L .
[0304] Continuously, a leading address of the symbol storing area of the top line $8 b$ is set and " 4 " is set as the number of checks. Whenever the number of checks is subtracted by 1 , the address is updated in order of the bottom line $8 d$, the cross-down line $8 e$ and the cross-up line $8 a$.
[0305] In the display checking process (see FIG. 30), Bell is determined as a display combination, based on the symbol combination table for stop-control (see FIG. 9) and the symbols storing areas of the 4 lines, and the data " 00000010 " is stored in the display combination storing area. In the expected display combination storing process, the data " 00000010 " of the display combination storing area is copied to the pseudo display combination storing area and the display combination storing area is cleared.
[0306] In the display combination retrieving process (see FIG. 31), the leading address of the center line $\mathbf{8} c$ of the symbol storing area is set and 1 is set as the number of checks. Continuously, in the display checking process, RB1 is determined as a display combination, based on the symbol combination table for stop-control and the symbol storing area of the center line $8 c$, and the data " 01000000 " is stored in the display combination storing area. In the expected display combination storing area, the data " 01000000 " of the display combination storing area is set in the HL register and the data " 01000000 " of the internal winning combination storing area is set in the DE register
[0307] In the priority ranking checking process (see FIG. 29), " 00000000 " is set as an initial value of the priority ranking data. Then, " 1 " is set as an initial value of the priority ranking and " 5 " is set as the number of checks, so that it is carried out the check on the priority ranking as the corresponding number of checks, as follows.
[0308] First, the priority attraction-in ranking table (see FIG. 10) is referred to and the attraction-in data " 00001000 " corresponding to the priority ranking 1 (i.e., Replay) is acquired. Then, when it is taken a logical product of the attraction-in data " 00001000 ", the data " 01000000 " of the DE register and the data " 01000000 " of the HL register, the resulting data becomes 0 . Accordingly, the priority ranking data is not updated, the priority ranking is added by 1 and the number of checks is subtracted by 1 .
[0309] Next, the attraction-in data " 01110000 " corresponding to the priority ranking 2 (i.e., RB) is acquired. Then, when it is taken a logical product of the attraction-in data " 01110000 ", the data " 01000000 " of the DE register and the data " 01000000 " of the HL register, the resulting data is not 0 . Accordingly, " 5 " obtained by adding 1 to the number of checks " 4 " is set as the priority ranking data. In other words, " 00000001 " is set as the priority ranking data. In the expected display combination storing process, the priority ranking data " 00000101 " is shifted to the upper 4 bits and "01010000," is evacuated.
[0310] Continuously, the data " 00000010 " of the pseudo display combination storing area is set in the HL register and the data " 01000010 " of the area for storing a winning combination for reel stop is set in the DE register.
[0311] In the priority ranking checking process, " 00000000 " is set as an initial value of the priority ranking data. Then, " 1 " is set as the initial value of the priority ranking and " 5 " is set as the number of checks, so that it is carried out the check on the priority ranking as the corresponding number of checks, as described above.
[0312] As a result of the check, when the attraction-in data " 00000010 "corresponding to the priority ranking 3 (i.e., Bell) is acquired, since a logical product of the attraction-in data " 00000010 ", the data " 01000010 " of the DE register and the data " 00000010 " of the HL register is not 0 , " 4 " obtained by adding 1 to the number of checks " 3 " is set as the priority ranking data. In other words, " 00000100 " is set as the priority ranking data.
[0313] In the expected display combination storing process, when it is taken a logical sum of the priority ranking data " 00000100 " and the priority ranking data " 01010000 " evacuated, a result thereof becomes " 01010100 " which is in turn stored in the symbol position " 0 " of the expected display combination storing area 1 (see FIG. 23B).
[0314] In the same manner, it is carried the above process from the symbol position " 1 " to the symbol position " 20 " of the left reel 3 L and the priority ranking data is stored in the respective symbol positions of the expected display combination storing area 1 . When the priority ranking data is stored in all the symbol positions, it results in the storing example of the first stop operation time shown in FIG. 23B. In addition, the above process is also carried out for the center reel 3C (or right reel 3R) and the priority ranking data is stored in the respective symbol positions of the expected display combination storing area 2 (or expected display combination storing area 3).
[0315] In the mean time, after the first stop operation (or second stop operation), the type of the symbol displayed in the display window is stored in the symbol storing area in accordance with the symbol position counter (for example, 19) of the stopped reel (for example, left reel 3L) and the respective symbol positions of the retrieval target reel. Then, based on the types of the symbol stored in the symbol storing area, the priority ranking data is determined in the same manner of the above processes before the first stop operation and then stored in the expected display combination storing area.
[0316] In the followings, it is specifically described a process until the rotation of reel is stopped in accordance with the expected display combination storing area (see the storing example in FIG. 23A, FIG. 23B), based on the descriptions of FIGS. 32 to 34.
[0317] Hereinafter, with reference to a storing example of an expected display combination storing area when an internal winning combination storing area shown in FIG. 23A is " 00000000 ", it is described a case where the push operation is detected in order of the left stop button 7L, the center stop button 7C and the right stop button 7R and the symbol position counter is respectively " 15 " at the time when the push operation is detected.
[0318] Before the stop button is pushed, in the reel stop initialization process, since the winning number is 0 , the retrieval parameter table for Losing (see FIG. 11A) corresponding to the flag counter $\mathbf{0}$ is determined.
[0319] First, the first stop operation is described. In the priority attraction-in control process (see FIG. 33), based on the retrieval parameter table for Losing, the left reel 3L and the symbol position counter " 15 " of the left reel 3 L , " 3 " is determined as the retrieval status data and the retrieval order table 3 (see FIG. 12) is determined.
[0320] In the process of selecting the expected display combination storing area (see FIG. 34), since the first stop operation is the push operation for the left stop button 7L, the leading address of the expected display combination storing area 1 is set.
[0321] In the priority attraction-in control process, the address of the expected display combination storing area corresponding to the symbol position counter " 15 " of the left reel 3 L is stored. 5 is set as the number of checks and the check on the number of sliding symbols is carried out as the corresponding number of checks, as follows.
[0322] First, the retrieval order table 3 is referred to, and the number of sliding symbols " 4 " corresponding to the retrieval order (i.e., retrieval order " 5 ") same as the number of checks " 5 " is sampled and added to the address corresponding to the symbol position " 15 " of the expected display combination storing area 1 . Then, it is acquired the data " 00010001 " of the expected display combination storing area (i.e. symbol position "15"+"4"="19") stored in the address obtained by the addition.
[0323] Since the underflow is not carried out when the data (its initial value is " 0 ") evacuated to a predetermined register is subtracted from the data, the data " 00010001 " of the expected display combination storing area of the current address is evacuated to the predetermined register and the
number of sliding symbols " 4 " is evacuated to a specific register. The number of checks is subtracted by 1 .
[0324] Likewise, the number of sliding symbols " 2 " corresponding to the number of checks " 4 " is sampled and the data " 00010000 " of the corresponding expected display combination storing area (i.e., symbol position " 15 "+" $2=$ " 17 ") is obtained.
[0325] Since the underflow is carried out when the data " 00010001 " evacuated to the predetermined register is subtracted from the data, it is not carried out the evacuation for the data of the expected display combination storing area and the number of checks is subtracted by 1 .
[0326] Next, the number of sliding symbols " 0 " corresponding to the number of checks " 3 " is sampled and the data " 00010000 " of the corresponding expected display combination storing area (i.e., symbol position " 15 " $+00 "=$ " 15 ") is obtained.
[0327] Since the underflow is carried out when the data " 00010001 " evacuated to the predetermined register is subtracted from the data, it is not carried out the evacuation for the data of the expected display combination storing area and the number of checks is subtracted by 1 .
[0328] Next, the number of sliding symbols " 1 " corresponding to the number of checks " 2 " is sampled and the data " 00000001 " of the corresponding expected display combination storing area (i.e., symbol position " 15 "+" 1 "= " 16 ") is obtained.
[0329] Since the underflow is carried out when the data " 00010001 " evacuated to the predetermined register is subtracted from the data, it is not carried out the evacuation for the data of the expected display combination storing area and the number of checks is subtracted by 1 .
[0330] Next, the number of sliding symbols " 3 " corresponding to the number of checks " 1 " is sampled and the data " 00010001 " of the corresponding expected display combination storing area (i.e., symbol position " 15 " +3 " $"=$ " 18 ") is obtained.
[0331] Since the underflow is not carried out when the data " 00010001 " evacuated to the predetermined register is subtracted from the data, the data " 00010001 " of the expected display combination storing area of the current address is evacuated to the predetermined register and the number of sliding symbols " 3 " is evacuated to the specific register. The number of checks is subtracted by 1 .
[0332] As a result, the number of checks becomes 0 and the number of sliding symbols " 3 " evacuated to the specific register is restored.
[0333] Based on the symbol position " 15 " and the number of sliding symbols " 3 ", " 18 " is determined as the expected stop position. The rotation of the left reel 3L is stopped at the expected stop position " 18 ", so that Replay, Bell and Blank are displayed in the upper, central and lower parts of the left display window 4L.
[0334] In the followings, the second stop operation is described. In the priority attraction-in control process, based on the retrieval parameter table for Losing, the center reel 3 C and the symbol position counter " 15 ", " 0 " is determined as the retrieval status data and the retrieval order table 0 is determined.
[0335] In the process of selecting the expected display combination storing area, since the second stop operation is the push operation for the center stop button 7 C , the leading address of the expected display combination storing area 1 is set.
[0336] In the priority attraction-in control process, the address of the expected display combination storing area corresponding to the symbol position counter " 15 " of the left reel 3 L is stored. 5 is set as the number of checks and the check on the number of sliding symbols is carried out as the corresponding number of checks, as in the case of the above first stop operation.
[0337] As a result of all the checks which are carried out in order of 3 symbols, 1 symbol 4 symbols, 2 symbols and 0 symbol, the priority ranking data " 00010001 " of the symbol position " 15 " is evacuated to a predetermined register and the number of sliding symbols " 0 " is evacuated to a specific register. Accordingly, based on the number of sliding symbols " 0 " restored from the specific register and the symbol position " 15 ", " 15 " is determined as an expected stop position. The rotation of the center reel 3C is stopped at the expected stop position " 15 ", so that Cherry, Bell and Replay are displayed in the upper, central and lower parts of the center display window 4 C .
[0338] In the followings, the third stop operation is described. In the priority attraction-in control process, based on the retrieval parameter table for Losing, the right reel 3 R and the symbol position counter " 15 ", " 0 " is determined as the retrieval status data and the retrieval order table 0 is determined.
[0339] In the process of selecting the expected display combination storing area, since the third stop operation is the push operation for the right stop button 7 R , the leading address of the expected display combination storing area 1 is set.
[0340] In the priority attraction-in control process, the address of the expected display combination storing area corresponding to the symbol position counter " 15 " of the right reel 3 R is stored. 5 is set as the number of checks and the check on the number of sliding symbols is carried out as the corresponding number of checks, as in the case of the above first stop operation.
[0341] As a result of all the checks which are carried out in order of 3 symbols, 1 symbol 4 symbols, 2 symbols and 0 symbol, the priority ranking data " 00010001 " of the symbol position " 15 " is evacuated to a predetermined register and the number of sliding symbols " 0 " is evacuated to a specific register. Accordingly, based on the number of sliding symbols " 0 " restored from the specific register and the symbol position " 15 ", " 15 " is determined as an expected stop position. The rotation of the right reel 3 R is stopped at the expected stop position " 15 ", so that Bell, Cherry and Replay are displayed in the upper, central and lower parts of the right display window 4 R .
[0342] Accordingly, since Bell of the left reel 3L, Bell of the center reel 3 C and Cherry of the right reel 3 R are displayed in the display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ along the center line $8 c$, a combination of symbols relating to a winning is not displayed and Losing is determined as a display combination.
[0343] Hereinafter, with reference to a storing example of an expected display combination storing area when an internal winning combination storing area shown in FIG. 23A is " 01000000 ", it is described a case where the push operation is detected in order of the left stop button 7L, the center stop button 7C and the right stop button 7R and the symbol position counter is respectively " 15 " at the time when the push operation is detected.
[0344] Before the stop button is pushed, in the reel stop initialization process, since the winning number is 7 , the retrieval parameter table for RB1 (see FIG. 11B) corresponding to the flag counter 7 is determined.
[0345] First, the first stop operation is described. In the priority attraction-in control process, based on the retrieval parameter table for RB 1 , the left reel 3 L and the symbol position counter " 15 " of the left reel 3 L , " 4 " is determined as the retrieval status data and the retrieval order table 4 is determined.
[0346] In the process of selecting the expected display combination storing area, since the first stop operation is the push operation for the left stop button 7L, the leading address of the expected display combination storing area 1 is set (in the register).
[0347] In the priority attraction-in control process, the address of the expected display combination storing area corresponding to the symbol position counter " 15 " of the left reel 3 L is stored. 5 is set as the number of checks and the check on the number of sliding symbols is carried out as the corresponding number of checks, as follows.
[0348] First, the retrieval order table 4 is referred to, and the number of sliding symbols " 1 " corresponding to the retrieval order (i.e., retrieval order " 5 ") same as the number of checks " 5 " is sampled and added to the address corresponding to the symbol position " 15 " of the expected display combination storing area $\mathbf{1}$. Then, it is acquired the data " 00000001 " of the expected display combination storing area (i.e. symbol position " 15 "+" 1 "=" 16 ") stored in the address obtained by the addition.
[0349] Since the underflow is not carried out when the data (its initial value is " 0 " evacuated to a predetermined register is subtracted from the data, the data " 00000001 " of the expected display combination storing area of the current address is evacuated to the predetermined register and the number of sliding symbols " 1 " is evacuated to a specific register. The number of checks is subtracted by 1 .
[0350] Likewise, the number of sliding symbols " 3 " corresponding to the number of checks " 4 " is sampled and the data " 00010001 " of the corresponding expected display combination storing area (i.e., symbol position " 15 " +3 " $=$ " 18 ") is obtained.
[0351] Since the underflow is not carried out when the data " 00000001 " evacuated to the predetermined register is subtracted from the data, the data " 00010001 " of the expected display combination storing area of the current address is evacuated to the predetermined register and the number of sliding symbols " 3 " is evacuated to a specific register. The number of checks is subtracted by 1 .
[0352] Next, the number of sliding symbols " 0 " corresponding to the number of checks " 3 " is sampled and the
data " 00010000 " of the corresponding expected display combination storing area (i.e., symbol position " 15 " + " 0 " $=$ " 15 ") is obtained.
[0353] Since the underflow is carried out when the data "00010001" evacuated to the predetermined register is subtracted from the data, it is not carried out the evacuation for the data of the expected display combination storing area and the number of checks is subtracted by 1 .
[0354] Next, the number of sliding symbols " 2 " corresponding to the number of checks " 2 " is sampled and the data " 00010000 " of the corresponding expected display combination storing area (i.e., symbol position " 15 "+" 2 "= " 17 ") is obtained.
[0355] Since the underflow is carried out when the data "00010001" evacuated to the predetermined register is subtracted from the data, it is not carried out the evacuation for the data of the expected display combination storing area and the number of checks is subtracted by 1 .
[0356] Next, the number of sliding symbols "4" corresponding to the number of checks " 1 " is sampled and the data " 00010100 " of the corresponding expected display combination storing area (i.e., symbol position " 15 "+" 4 " $=$ " 19 ") is obtained.
[0357] Since the underflow is not carried out when the data " 00010001 " evacuated to the predetermined register is subtracted from the data, the data " 00010100 " of the expected display combination storing area of the current address is evacuated to the predetermined register and the number of sliding symbols " 4 " is evacuated to the specific register. The number of checks is subtracted by 1 .
[0358] As a result, the number of checks becomes 0 and the number of sliding symbols " 4 " evacuated to the specific register is restored.
[0359] Based on the symbol position " 15 " and the number of sliding symbols " 4 ", " 19 " is determined as the expected stop position. The rotation of the left reel 3 L is stopped at the expected stop position " 19 ", so that Watermelon, Replay and Bell are displayed in the upper, central and lower parts of the left display window 4L. Like this, in case that RB1 is determined as an internal winning combination, when it becomes the stop starting position (" 15 " in the above example) at which Red 7 relating to RB1 cannot be attracted-in, it is determined the determination of the number of sliding symbols so that Bell is attracted-in to the non-activated line (bottom line $8 d$ in the above example).
[0360] In the followings, the second stop operation is described. In the priority attraction-in control process, based on the retrieval parameter table for RB1, the center reel 3C and the symbol position counter " 15 ", " 1 " is determined as the retrieval status data and the retrieval order table 1 is determined.
[0361] In the process of selecting the expected display combination storing area, since the second stop operation is the push operation for the center stop button 7C, the leading address of the expected display combination storing area 1 is set.
[0362] In the priority attraction-in control process, the address of the expected display combination storing area corresponding to the symbol position counter " 15 " of the left
reel 3 L is stored. 5 is set as the number of checks and the check on the number of sliding symbols is carried out as the corresponding number of checks, as in the case of the above first stop operation.
[0363] As a result of all the checks which are carried out in order of 4 symbols, 2 symbols, 0 symbol, 3 symbols and 1 symbol, the priority ranking data " 00010100 " of the symbol position " 16 " is evacuated to a predetermined register and the number of sliding symbols " 1 " is evacuated to a specific register. Accordingly, based on the number of sliding symbols " 1 " restored from the specific register and the symbol position " 15 ", " 16 " is determined as an expected stop position. The rotation of the center reel 3C is stopped at the expected stop position " 16 ", so that Bell, Cherry and bell are displayed in the upper, central and lower parts of the center display window 4C.
[0364] In the followings, the third stop operation is described. In the priority attraction-in control process, based on the retrieval parameter table for RB1, the right reel 3R and the symbol position counter " 15 ", " 2 " is determined as the retrieval status data and the retrieval order table 2 is determined.
[0365] In the process of selecting the expected display combination storing area, since the third stop operation is the push operation for the right stop button 7 R , the leading address of the expected display combination storing area 1 is set.
[0366] In the priority attraction-in control process, the address of the expected display combination storing area corresponding to the symbol position counter " 15 " of the right reel 3 R is stored. 5 is set as the number of checks and the check on the number of sliding symbols is carried out as the corresponding number of checks, as in the case of the above first stop operation.
[0367] As a result of all the checks which are carried out in order of 3 symbols, 1 symbol, 0 symbol, 4 symbols and 2 symbols, the priority ranking data " 00010100 " of the symbol position " 17 " is evacuated to a predetermined register and the number of sliding symbols " 2 " is evacuated to a specific register. Accordingly, based on the number of sliding symbols " 2 " restored from the specific register and the symbol position " 15 ", " 17 " is determined as an expected stop position. The rotation of the right reel 3 R is stopped at the expected stop position " 17 ", so that Replay, Watermelon and Bell are displayed in the upper, central and lower parts of the right display window 4 R .
[0368] As a result that the rotation of all the reels is stopped, since three Red $7 s$ are not arranged along the center line $8 c$, Losing is determined as a display combination in the display combination retrieving process. However, three Bells are arranged along the bottom line $8 d$. Like this, in case that a combination of symbols relating to RB1 is not displayed (i.e., in case that so-called "failure" occurs), a combination of symbols relating to Bell is displayed along the other line except the center line 8c. Accordingly, by observing this, the player can perceive that RB is determined as an internal winning combination.
[0369] As described above, according to the gaming machine 1 of the invention, the priority ranking is determined, based on the symbol displayed on the center line $8 c$ and the symbol displayed on the other 4 lines except the
center line $8 c$, for each of the symbols arranged on the respective reels (for example, every symbol of the symbol positions " 0 "-" 20 "). More specifically, the priority ranking relating to the symbol displayed on the center line 8 c and the type of the internal winning combination and the priority ranking relating to the symbol displayed on the other 4 lines except the center line $8 c$ and the type of the winning combination for reel-stop are determined for each of all the symbols arranged on the respective reels, and stored in the expected display combination storing area, as the priority ranking data. In other words, it is possible to make the relative evaluation between the symbols on the reels by referring to the expected display combination storing area.
[0370] When the stop operation is detected, it is retrieved, based on the symbol position counter at that time and the expected display combination storing area, all the symbols ranging from the symbol of the symbol position corresponding to the symbol position counter to 4 symbols, and the priority rankings determined in the symbols are respectively compared. Then, the rotation of reel is stopped, based on the symbol having the highest priority ranking as a result of the comparison.
[0371] Accordingly, when the stop operation is detected, the most suitable symbol is determined among all the symbols ranging from the symbol of the symbol position corresponding to the symbol position counter at that time to 4 symbols, and the rotation of reel is stopped on the basis of the determined symbol, so that it is possible to optimize the symbols to be displayed. In the mean time, if the priority ranking determined for each of the symbols arranged on the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$ is determined, the combination of symbols to be displayed in the display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ is also determined. Accordingly, it can be said that they have an equivalent relationship.
[0372] In addition, according to the gaming machine 1 of the invention, when the rotation of the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$ is stopped, it is determined whether or not a winning is established, based on only the combination of symbols displayed on the center line $8 c$ of the plural lines provided to the display windows 4L, 4C, 4R. Accordingly, the areas, for which it is carried out the determination of whether or not a winning is established, are reduced, so that it is possible to easily avoid displaying a combination of symbols relating to a winning not determined as an internal winning combination.
[0373] According to a conventional gaming machine having a plurality of activated lines, in case that Losing is determined as an internal winning combination and symbols relating to Bell are respectively displayed in the central parts of the right display window 4 R and the center display window 4C (so-called, Check of Bell is displayed on the center line), when 5 symbols within a range of 4 symbols from the stop starting position of the left reel 3L are arranged in order of Bell, Watermelon, Cherry, Replay and Bell, Cherry is always displayed in one of the upper, central and lower parts of the left display window even though the display of the combination of symbols relating to Bell is avoided. In other words, it is impossible to avoid the erroneous winning. In this case, it is required to change the arrangement of symbols on the left reel.
[0374] However, according to the gaming machine 1 of the invention, it is possible to prevent the above situation
from occurring by applying the above structures. Accordingly, it is not necessary to limit arrangements of the symbols on the reels beyond necessity and it is possible to freely develop the gaming machine.
[0375] In addition, according to the gaming machine 1 of the invention, although it is checked the symbol which is subject to the stop prohibition in the processes from the step S162 to the step S169 of the priority ranking checking process in FIG. 29, it is allowed to display a symbol, even though this symbol is not matched to the determined internal winning combination, until the reels being rotated become the last one. Accordingly, since it is possible to display the Check which is not determined as an internal winning combination, depending on the stop starting positions, the player's expectations can be maintained.
[0376] In addition, according to the gaming machine 1 of the invention, the rotation of reel is stopped, based on the symbol having the highest priority ranking among all the symbols ranging from the symbol of the stop starting position to 4 symbols. Accordingly, for example, in case that the internal winning combination storing area is " 01000100 " (i.e., RB1 and Watermelon are determined together), even though it is first retrieved the symbol position at which the symbol relating to Watermelon can be displayed among the symbols ranging from the stop starting position to 4 symbols, if there is a symbol position at which a symbol relating to RB1 having the higher priority ranking can be displayed within the range that the retrieval is not carried out yet, it is determined the symbol position at which the symbol relating to RB1 can be displayed. As a result, it is possible to prevent the payout to be awarded to the player from being lost and thus to embody the adequacy of the payout.
[0377] In addition, according to the gaming machine 1 of the invention, when RB is determined as an internal winning combination, Bell is also determined as a winning combination for reel-stop. Accordingly, when RB is determined as an internal winning combination and a combination of symbols relating to RB is not displayed on the center line $8 c$ (i.e., there occurs a failure of RB), it is possible to intentionally display a combination of symbols relating to Bell on the separate line different from the center line $8 c$, as a so-called ready-to-win combination. As a result, since the combination of symbols relating to Bell is displayed on the separate line different from the center line $8 c$, the player can perceive that RB has been determined.
[0378] In addition, according to the gaming machine $\mathbf{1}$ of the invention, only the center line $8 c$ is structured as the activated line. Accordingly, even when a combination of symbols relating to a winning (i.e., Bell) is displayed on the other line different from the center line $8 c$, the erroneous winning is not caused and it is possible to perform the effects which are difficult to embody in a gaming machine having a plurality of activated lines. In other words, the combination of symbols relating to a winning (combination of symbols relating to Bell in the above example) is displayed on the separate line different from the center line $\mathbf{8 c}$. As a result, it is possible to notify the player that RB has been determined. Therefore, contrary to the conventional gaming machine where it is difficult to perceive the ready-to-win combination because the ready-to-win combination is displayed by a complicated combination of symbols, according to the gaming machine of the invention, the player can easily
perceive the ready-to-win combination. Thereby, it is allowed the player to easily suppose that RB has been determined, and the interest in the game can be thus increased.
[0379] In addition, according to the invention, if RB is determined as an internal winning combination, RB is copied as a winning combination for reel-stop. In addition, a combination of symbols relating to the corresponding RB is defined in the symbol combination table for stop-control. As a result, the priority ranking is determined so that the combination of symbols relating to RB can be displayed on the 4 lines except the center line $8 c$. In other words, the combination of symbols relating to RB is displayed on the 4 lines except the center line $8 c$, so that it is possible to notify the player that RB has been determined.
[0380] In addition, according to the invention, it is possible to embody a gaming machine wherein when a predetermined internal winning combination is determined by the internal winning combination determining means, the second symbol determining means determines a combination of symbols different from the combination of symbols relating to the predetermined internal winning combination, as a combination of symbols to be displayed in an area different from a predetermined area, and the reel stop means stops the rotation of reel, based on the combination of symbols determined by the second symbol determining means when the stop operation is detected by the stop operation detection means. Thereby, it is possible to allow a combination of symbols relating to the determined internal winning combination not to be displayed in an area different from the predetermined area. For example, in case that RB is determined, it is possible to allow a combination of symbols relating to RB not to be displayed on a separate line different from the center line $8 c$ by applying such structure that RB is not copied to a winning combination for reel-stop. In such structure, it is possible to prevent a situation where a player who gets used to a gaming machine having a plurality of activated lines is under the illusion that a winning is established.
[0381] In addition, according to the conventional gaming machine having a plurality of activated lines, it should be determined whether or not a winning is established, based on the combinations of symbols displayed in the respective activated lines. However, according to the gaming machine 1 of the invention, since it is determined whether or not a winning is established, based on a combination of symbols displayed on the single activated line only, it is possible to reduce a burden for the process which is required to determine whether or not the winning is established with regard to the other lines. As a result, it is possible to rapidly carry out the process of determining whether or not the winning is established, as compared to the conventional gaming machine.
[0382] In addition, according to the conventional gaming machine having a plurality of activated lines, there may occur a situation where the activated lines should be changed into one activated line under RB gaming state, so that it is required to change the process of determining whether or not the winning is established. However, according to the invention, it is possible to carry out the process common to the normal gaming state and the RB gaming state, so that the increase of the program capacity is prevented to the utmost.
[0383] In addition, in the gaming machine $\mathbf{1}$ of the invention, based on the priority attraction-in rankling table in which the priority rankings are defined for each of the types of the internal winning combination (or winning combination for reel-stop), the priority ranking is determined every symbol on the respective reels. Accordingly, it is possible to cope with the change of kinds of machines just by changing the priority rankings defined in the priority attraction-in ranking table.
[0384] Further, in the gaming machine 1 of the invention, when the stop operation is detected, one symbol is determined, based on the symbol position counter at that time, the expected display combination storing area and the retrieval order table having the number of sliding symbols $0 \sim 4$ defined therein. Accordingly, even when there are a plurality of symbols having a same priority ranking, it is possible to determine one symbol having a higher retrieval order, based on the corresponding retrieval orders.
[0385] While the embodiment of the invention has been described, the invention is not limited thereto.
[0386] In the mean time, regarding the reel, the start operation detection means, the internal winning combination determining means, the reel rotation means, the stop operation detection means, the first symbol determining means, the second symbol determining means, the reel stop means, the winning determining means, the predetermined area, the areas different from the predetermined area, the predetermined internal winning combination, the combination of specific symbols and the like, which constitute the gaming machine, the specific structures thereof are not limited to each element described in the above embodiment and can be changed.
[0387] In the above embodiment, the center line $8 c$ has been applied as the predetermined area. However, the invention is not limited thereto and another line may be applied. For example, any one of the top line $8 b$, the bottom line $8 d$, the cross-up line $8 a$ and the cross-down line $8 e$ may be applied. In addition, it may be also applied an area connecting the upper part of the left display window 4 L , the upper part of the center display window 4C and the central part of the right reel 3 R , and the like.
[0388] In the above embodiment, the reel index is detected so that the symbol of the symbol position " 0 " is located at the center line $8 c$ and the symbol on the center line $8 c$ is specified by the symbol position counter (in other words, the center line $8 c$ has been applied as the predetermined position). However, the invention is not limited thereto. In other words, the position at which the symbol is specified may be arbitrarily changed. For example, the reel index may be detected so that the symbol of the symbol position " 0 " is located at the top line $8 b$ (specifically, a central part of the upper area of the respective display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ ) or bottom line $8 b$ (specifically, a central part of the lower area of the respective display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ ).
[0389] For example, in case that the bottom line $8 b$ is applied, the symbol on the bottom line $8 b$ is specified by the symbol position counter. In this case, it is displayed in the display windows the symbol of the symbol position corresponding to the symbol position counter, the symbol of the symbol position over one, regarding the symbol position corresponding to the symbol position counter and the sym-
bol of the symbol position over two, regarding the symbol position corresponding to the symbol position counter. For example, when the symbol counter is " 15 ", it is displayed in the display windows the symbol of the symbol position " 15 ", the symbol of the symbol position " 16 " and the symbol of the symbol position " 17 ". Accordingly, even when the position at which the symbol specified by the symbol position counter is located is changed, the types of the symbols which can be displayed in the display windows are stored in the symbol storing area and the priority ranking data is determined, based on it.
[0390] In the above embodiment, it has been structured such that the priority ranking is higher as the upper bit is ON (i.e., 1) (i.e., the greater the value) and the symbol position determined to have the highest value as the priority ranking data is a symbol having the highest priority ranking. However, the invention is not limited thereto and a structure of the priority ranking data can be arbitrarily modified. In other words, it may be structured such that the priority ranking is higher as the lower bit is ON (i.e., 1) (i.e., the smaller the value), and the symbol position determined to have the smallest value as the priority ranking data is a symbol having the highest priority ranking.
[0391] In this case, it is possible to match the upper 4 bits of the priority ranking data to the other lines except the center line $8 c$ and the lower 4 bits of the priority ranking data to the center line $8 c$, for example. In addition, it is possible to structure the data structure of the upper 4 bits and the lower 4 bits as follows: 0 (i.e., " 0000 ") corresponds to Replay, 1 (i.e., " 0001 ") corresponds to "RB1, RB2, RB3", 2 (i.e., " 0010 ") corresponds to Bell, 3 (i.e., " 0011 ") corresponds to Watermelon, 4 (i.e., " 0100 ") corresponds to Cherry, 5 (i.e. " 0101 ") corresponds to the stop possibility and 6 (i.e., " 0110 ") corresponds to the stop avoidance.
[0392] In the above embodiment, any one of RB1, RB2 and RB3 has been applied as the predetermined internal winning combination. However, the invention is not limited thereto and another internal winning combination may be applied. For example, when Watermelon is applied, it is possible to notify the player of the failure.
[0393] In the above embodiment, the combination of symbols relating to Bell has been applied as the combination of specific symbols. However, the invention is not limited thereto and a combination of other symbols may be applied. For example, Watermelon may be determined as a winning combination for reel-stop and a combination of symbols relating to Watermelon may be defined in the symbol combination table for stop-control so that the combination of symbols relating to Watermelon is displayed on another line different from the center line $8 c$. In other words, it is possible to display a combination of any symbols by structuring the symbol combination table for stop-control so that a type of a winning combination for reel-stop determined when a predetermined internal winning combination is determined and a combination of symbols corresponding to the type are defined.
[0394] In addition, the combination of specific symbols is not limited to a combination of symbols relating to a winning (for example, combination of symbols in which three same symbols are arranged), and any mode may be applied. For example, it may be such structured that "Red 7-Red 7-Blue 7" is applied as a combination of symbols and
a winning combination for reel-stop corresponding to it is determined. By doing so, it is possible to prevent a situation where a player who gets used to a gaming machine having a plurality of activated lines is under the illusion that a winning is established.
[0395] In the above embodiment, RB1, RB2 and RB3 have been grouped and given with one priority ranking in the priority attraction-in ranking table. However, the invention is not limited thereto. For example, the type of an internal winning combination which will be grouped may be arbitrarily changed, such as Watermelon, Cherry, etc. In this case, it is preferred to apply the type which has not been simultaneously determined, as an internal winning combination.
[0396] In addition, in the above embodiment, the three display windows $4 \mathrm{~L}, 4 \mathrm{C}, 4 \mathrm{R}$ have been provided to correspond to the reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$, respectively. However, the number of display windows is not limited to 3 . For example, a single display window may be provided. It is enough that the display window can display three symbols of the symbols arranged on the respective reels $3 \mathrm{~L}, 3 \mathrm{C}, 3 \mathrm{R}$.
[0397] In addition, in the above embodiment, the number of sliding symbols has been sequentially read from the lower retrieval order (i.e., the retrieval order 5). However, the invention is not limited thereto. For example, if it is structured such that the number of sliding symbols having the higher retrieval order is preferentially read, the number of sliding symbols may be read from the higher retrieval order.
[0398] In addition, the symbol combination table for stopcontrol has been used to determine the priority ranking data in the expected display combination storing process. However, the invention is not limited thereto and a symbol combination table may be used. In the above embodiment, since it is provided the symbol combination table for stopcontrol in which the types of the display combination are smaller than in the symbol combination table, it is possible to reduce the number of retrievals and to rapidly carry out the retrieval related process, as compared to the symbol combination table. However, if the symbol combination table is together provided, it is possible to suppress the increase of the memory capacity of the ROM in a case where the symbol combination table for stop-control is provided.
[0399] In the mean time, in the above gaming machine, the second symbol determining means may determine a combination of specific symbols as a combination of symbols to be displayed in an area different from the predetermined area, when the information about game is updated to the predetermined information by the information update means, and the reel stop means may stop the rotation of the reel, based on the combination of specific symbols determined by the second symbol determining means, when the stop operation is detected by the stop operation detection means. As a result, the combination of symbols is displayed in the area different from the predetermined area, thereby notifying the player that the information about game is updated to the predetermined information. A value of the possible winning-number counter, the number of determinations of a predetermined internal winning combination, the number of operations of RB and the like may be applied as the information about game.
[0400] In addition, the device structures shown in FIGS. 1 and 2, the circuit structure and the peripheral device thereof shown in FIG. 3, the structures of tables shown in FIGS. 4 to 14 , the structures of storing areas of the RAM shown in FIGS. 15 to 23B, the flow charts shown in FIGS. 24 to 37 and the like, which have been applied to the above embodiment, may be arbitrarily changed or modified without departing the scope of the invention.
[0401] Further, in addition to the pachi-slot machine as described in the embodiment, the invention can be applied to another gaming machine such as slot machine, pachinko gaming machine, arrange ball, mahjong ball gaming machine, video slot, video poker and the like. Additionally, the invention can be applied to a game program which pseudo-executes the operations of the above pachi-slot machine as a home gaming machine, thereby executing a game. In this case, a medium for recording the game program may include a CD-ROM, FD (flexible disk) and the other recording media.
[0402] In the mean time, the effects described in the embodiment are only enumerations of the most preferred effects obtainable from the invention and the effects of the invention are not limited to the embodiments.
[0403] While this invention has been described in conjunction with the specific embodiments outlined above, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, the preferred embodiments of the invention as set forth above are intended to be illustrative, not limiting. Various changes may be made without departing from the spirit and scope of the invention as defined in the following claims.

## What is claimed is:

## 1. A gaming machine comprising:

a plurality of plural reels, each of which displaying a plurality of symbols;
a start operation detection unit for detecting a start operation;
an internal winning combination determining unit for determining an internal winning combination on the basis of the start operation detection carried out by the start operation detection unit;
a reel rotation unit for rotating the reels, respectively;
a stop operation detection unit for detecting a stop operation depending on types of the reels;
a first symbol determining unit for determining a combination of symbols to be displayed in a predetermined area, based on an internal winning combination determined by the internal winning combination determining unit;
a second symbol determining unit for determining a combination of symbols to be displayed in an area different from the predetermined area, based on an internal winning combination determined by the internal winning combination determining unit;
a reel stop unit for stopping rotation of the reels, based on the combination of symbols determined by the first symbol determining unit and the combination of symbols determined by the second symbol determining unit, when a stop operation detection is carried out by the stop operation detection unit; and
a winning determining unit for determining whether a winning is established or not, based on the combination of symbols displayed in the predetermined area, among a plurality of symbols displayed by the stopped reels, when the rotation of the reels is stopped.
2. The gaming machine according to claim 1 , wherein the second symbol determining unit determines a combination of specific symbols as the combination of symbols to be displayed in the area different from the predetermined area, when a predetermined internal winning combination is determined by the internal winning combination determining unit, and
wherein the reel stop unit stops the rotation of reel, based on the combination of specific symbols determined by the second symbol determining unit, when the stop operation detection is carried out by the stop operation detection unitmeans.


