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(54) **GAMING MACHINE**

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(57) **ABSTRACT**

A gaming machine has a variable display unit that variably displays symbols and a processor that controls a display made through the variable display unit. The processor controls the variable display unit so as to display one or more variable display groups each including variable display portions in which the symbols are variably displayed. The processor controls a progress of a multiple variable display game which is given through the variable display unit displaying the variable display groups in each of which the symbols are variably displayed.

(73) Assignee: **ARUZE CORP.**

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Apr. 28, 2005 (JP) 2005-132888

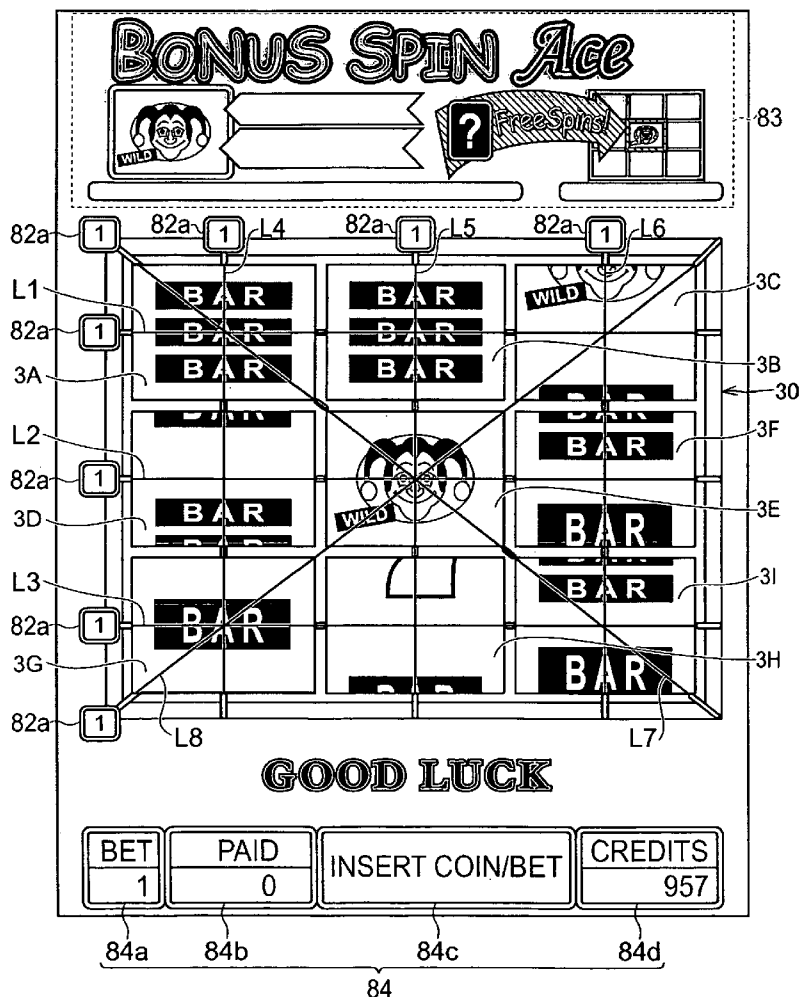


FIG. 1

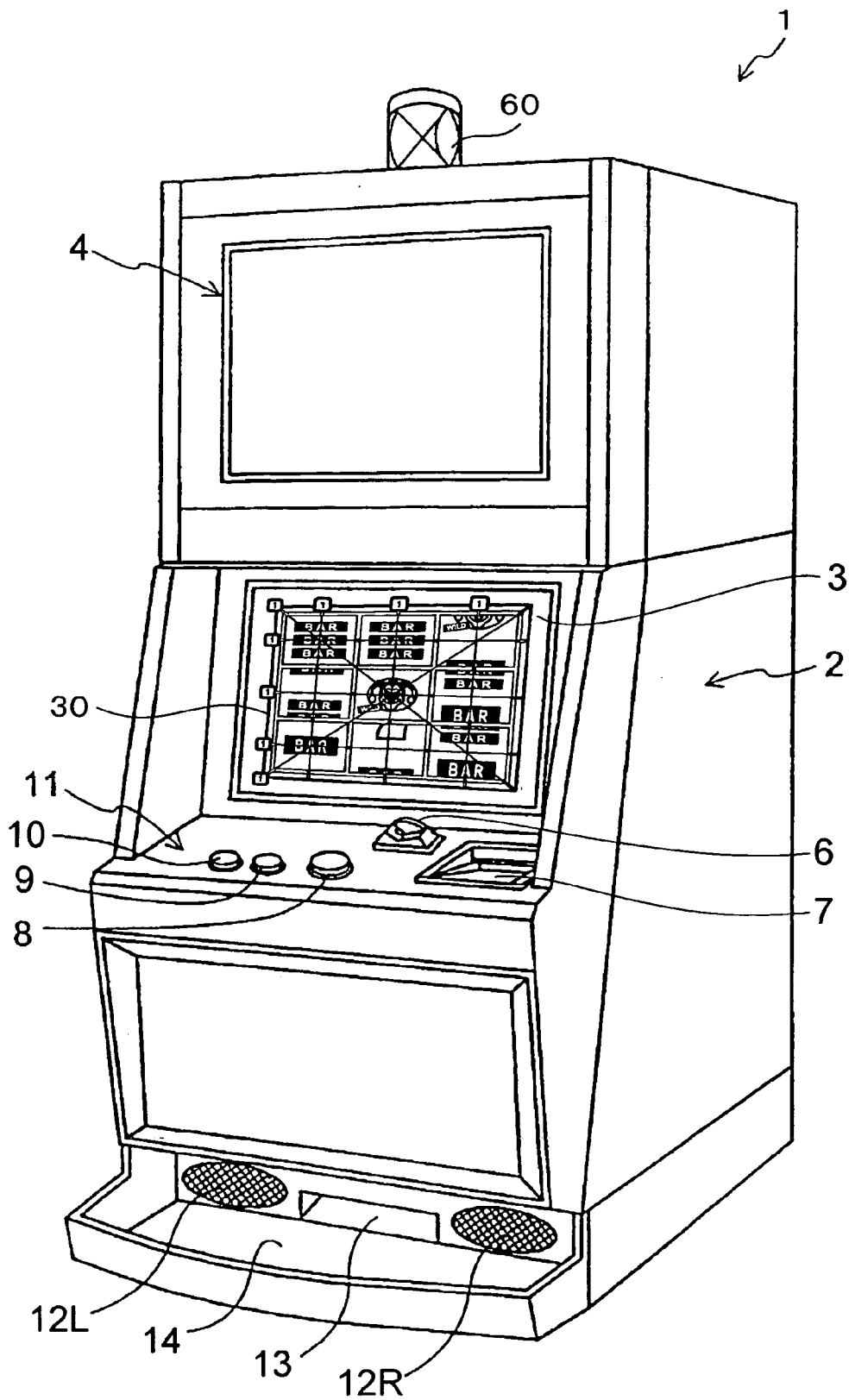
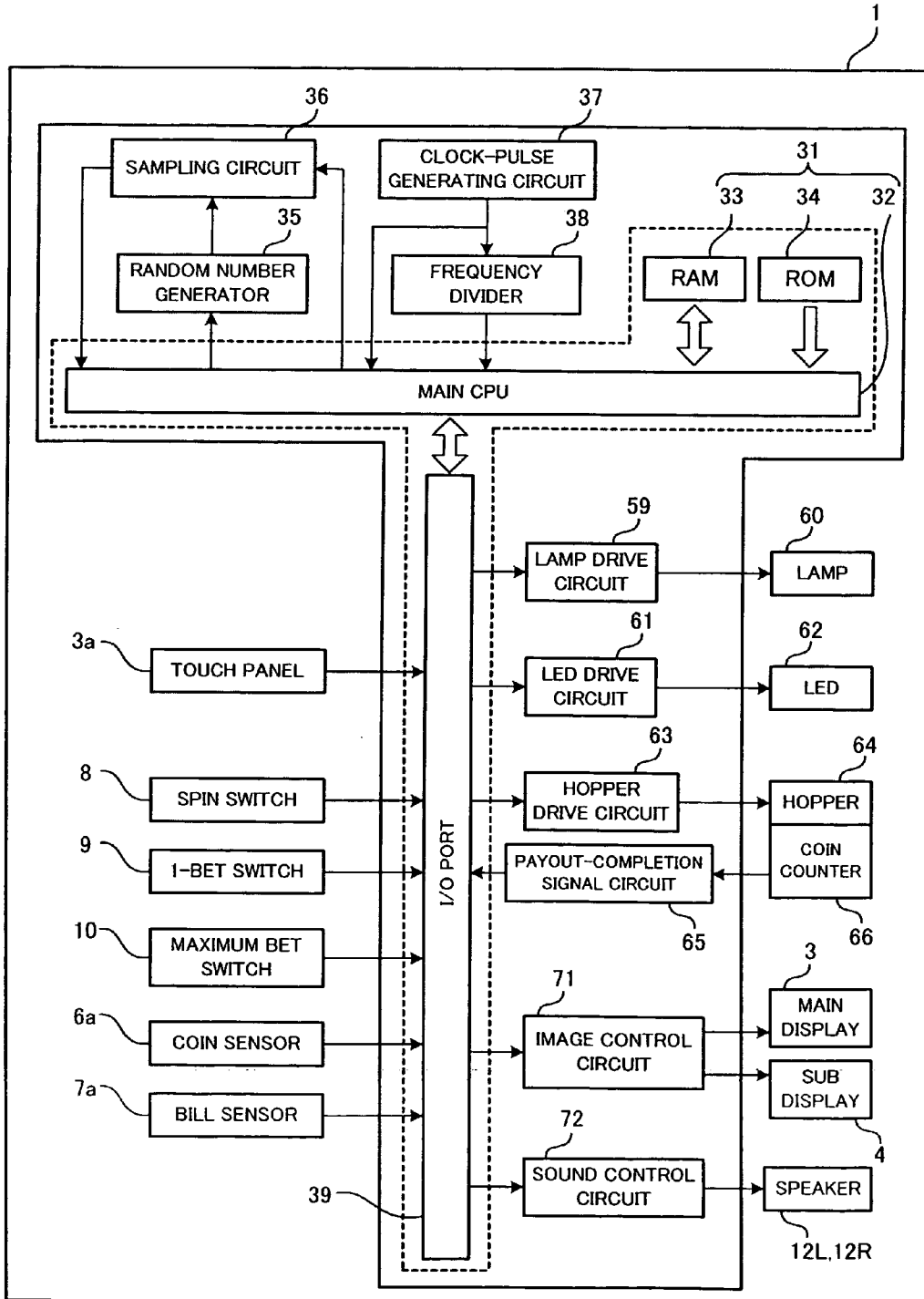


FIG. 2



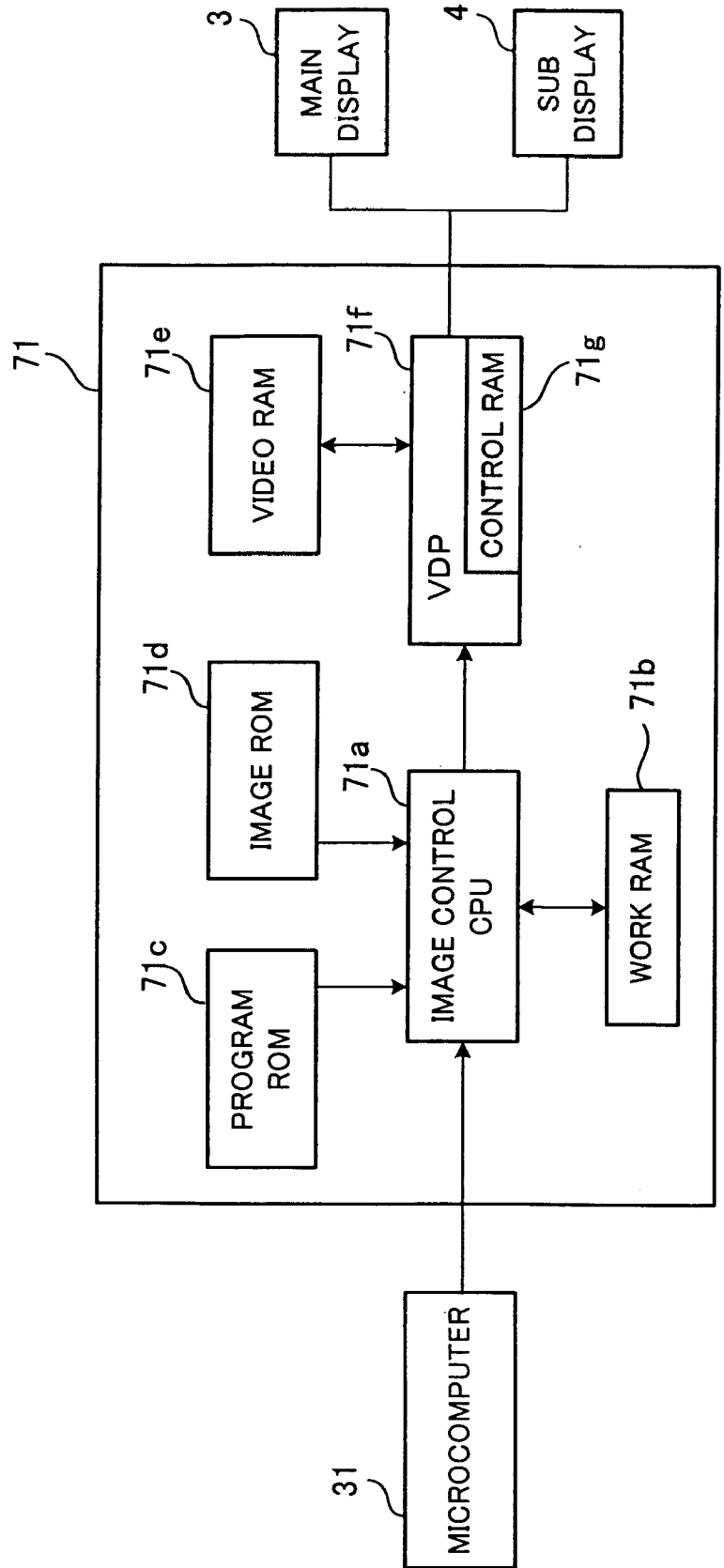


FIG. 3

FIG. 4

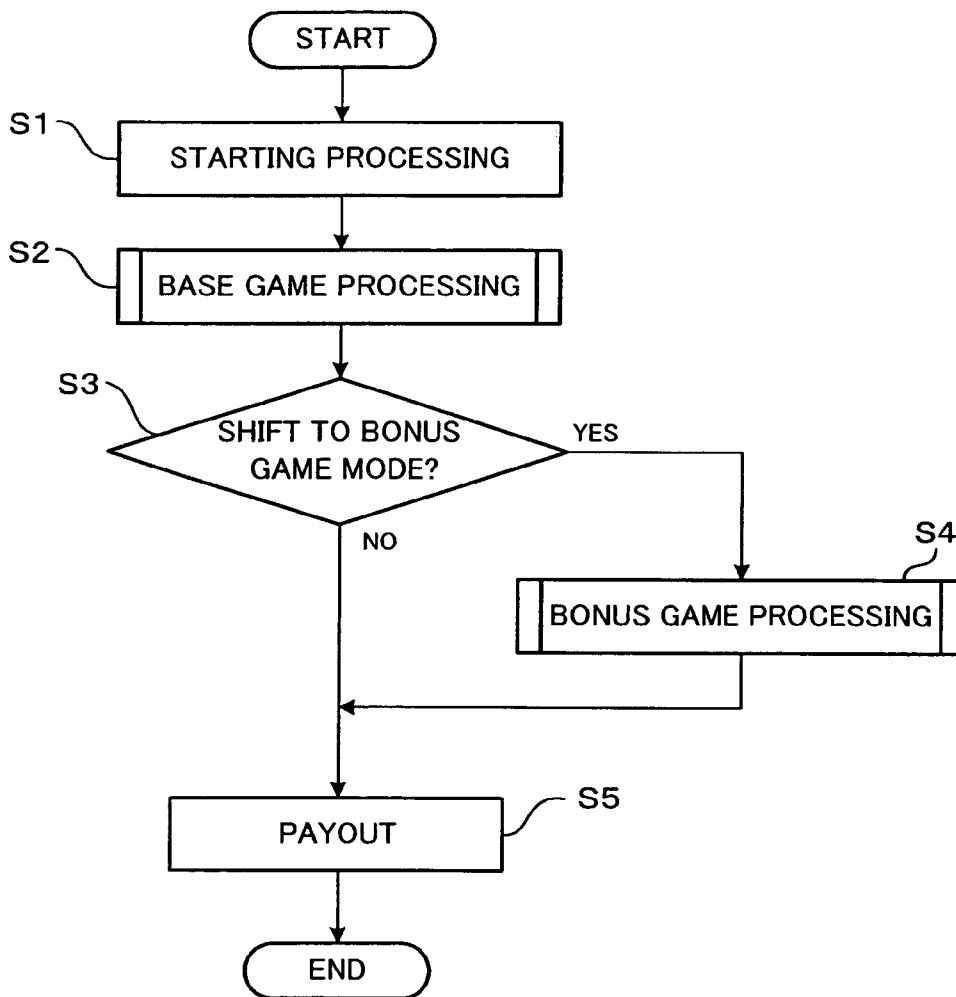


FIG. 5

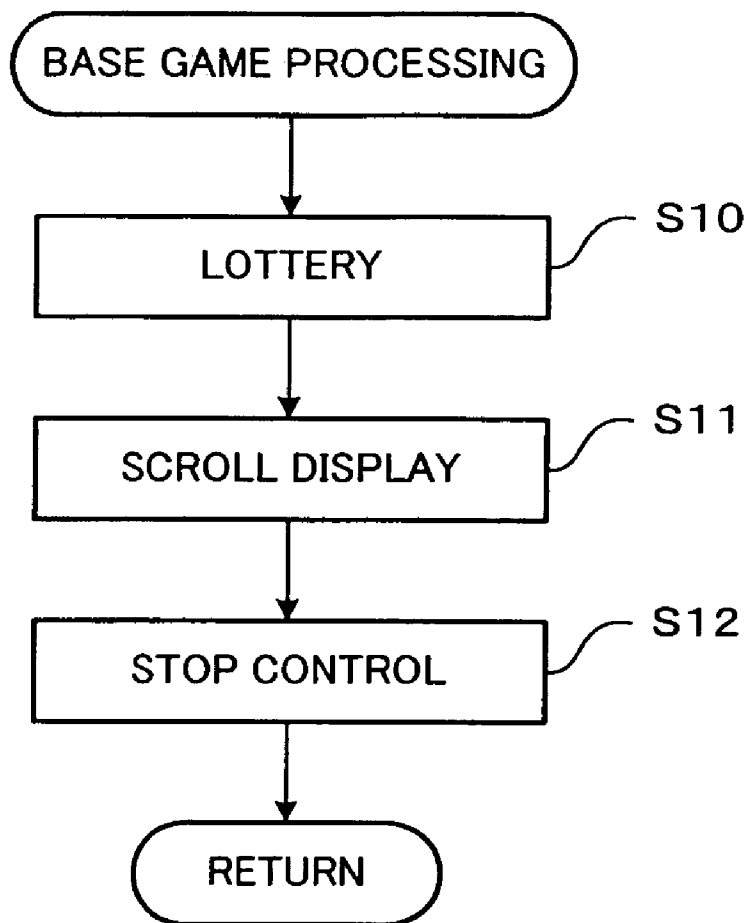


FIG. 6

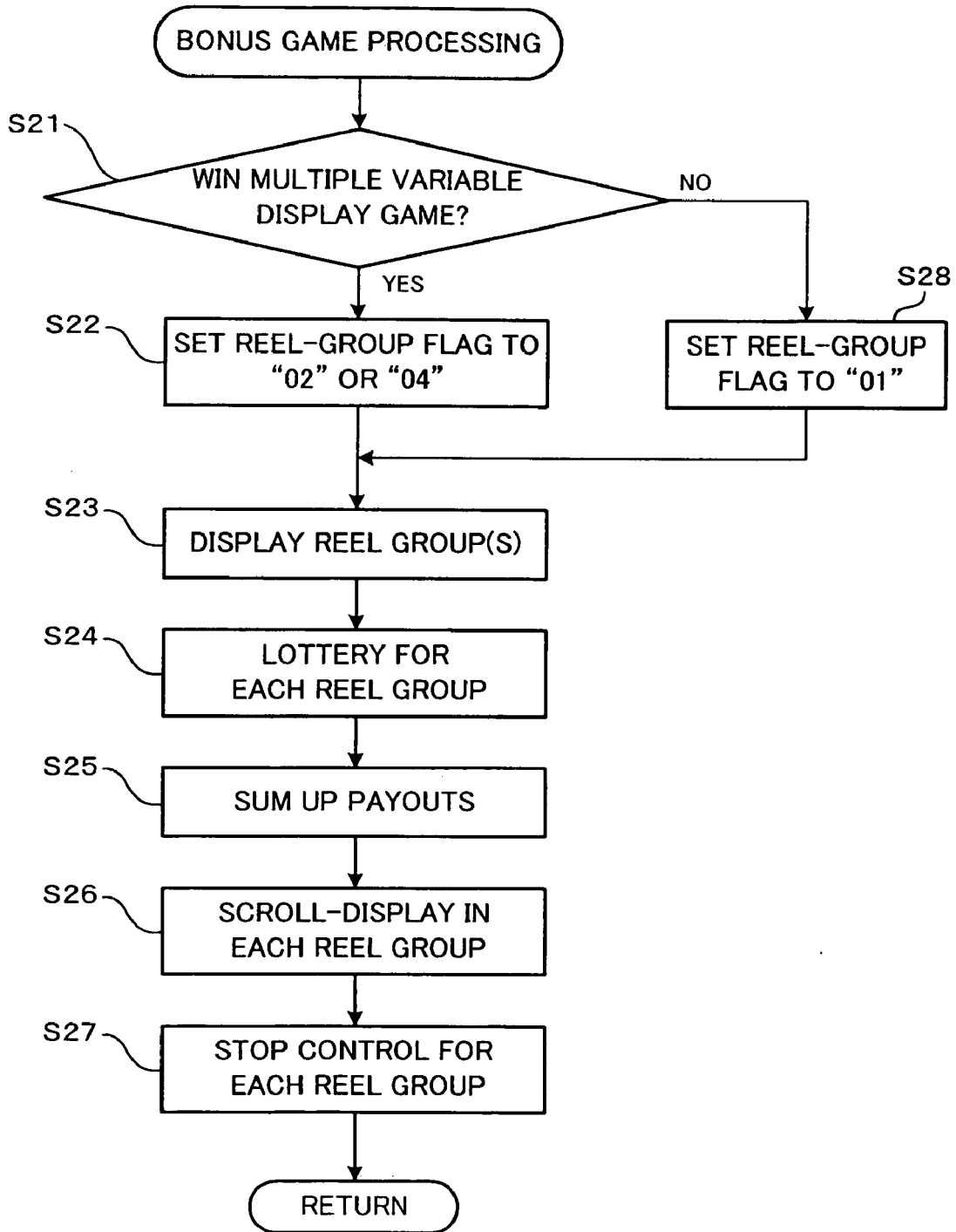
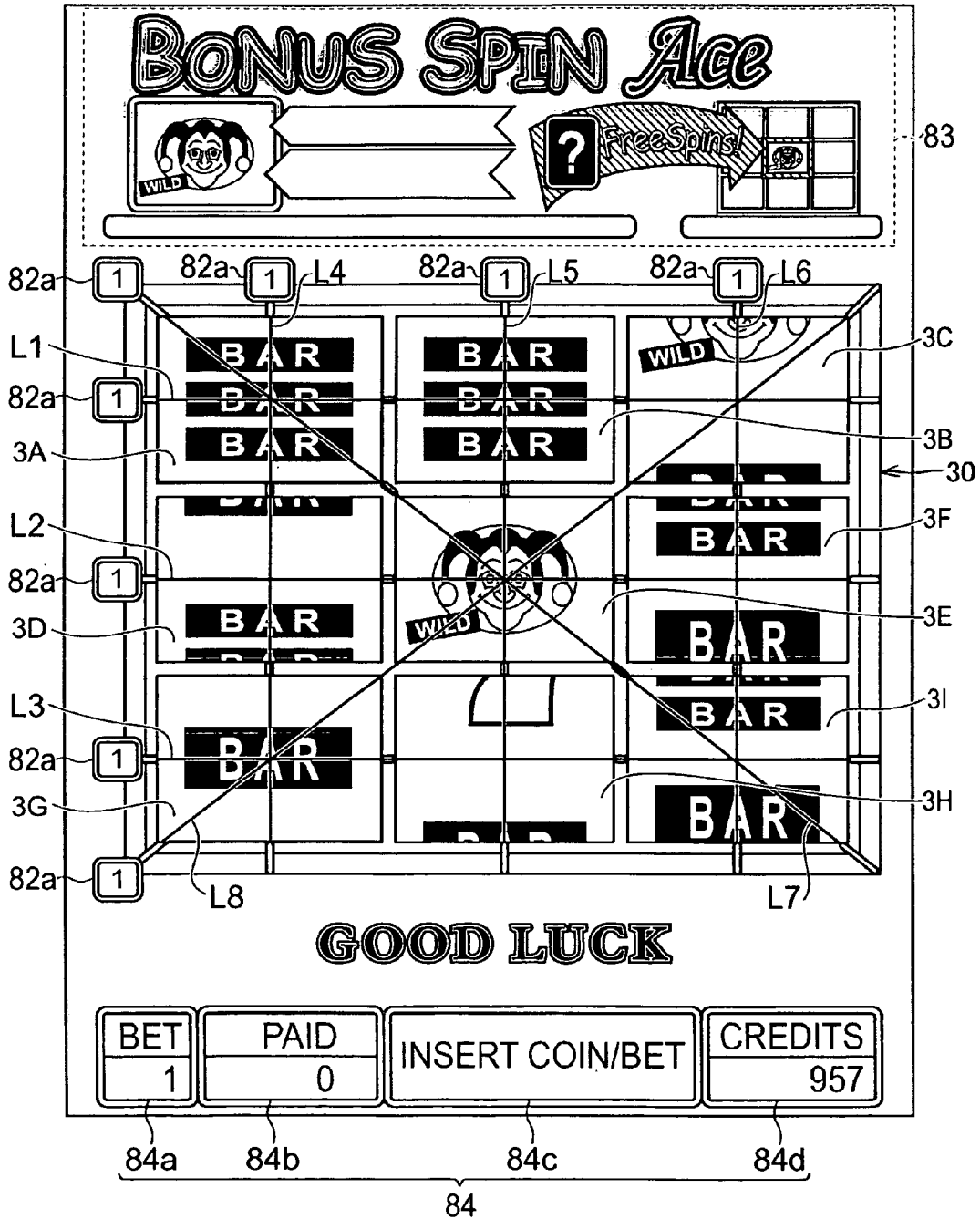


FIG. 7



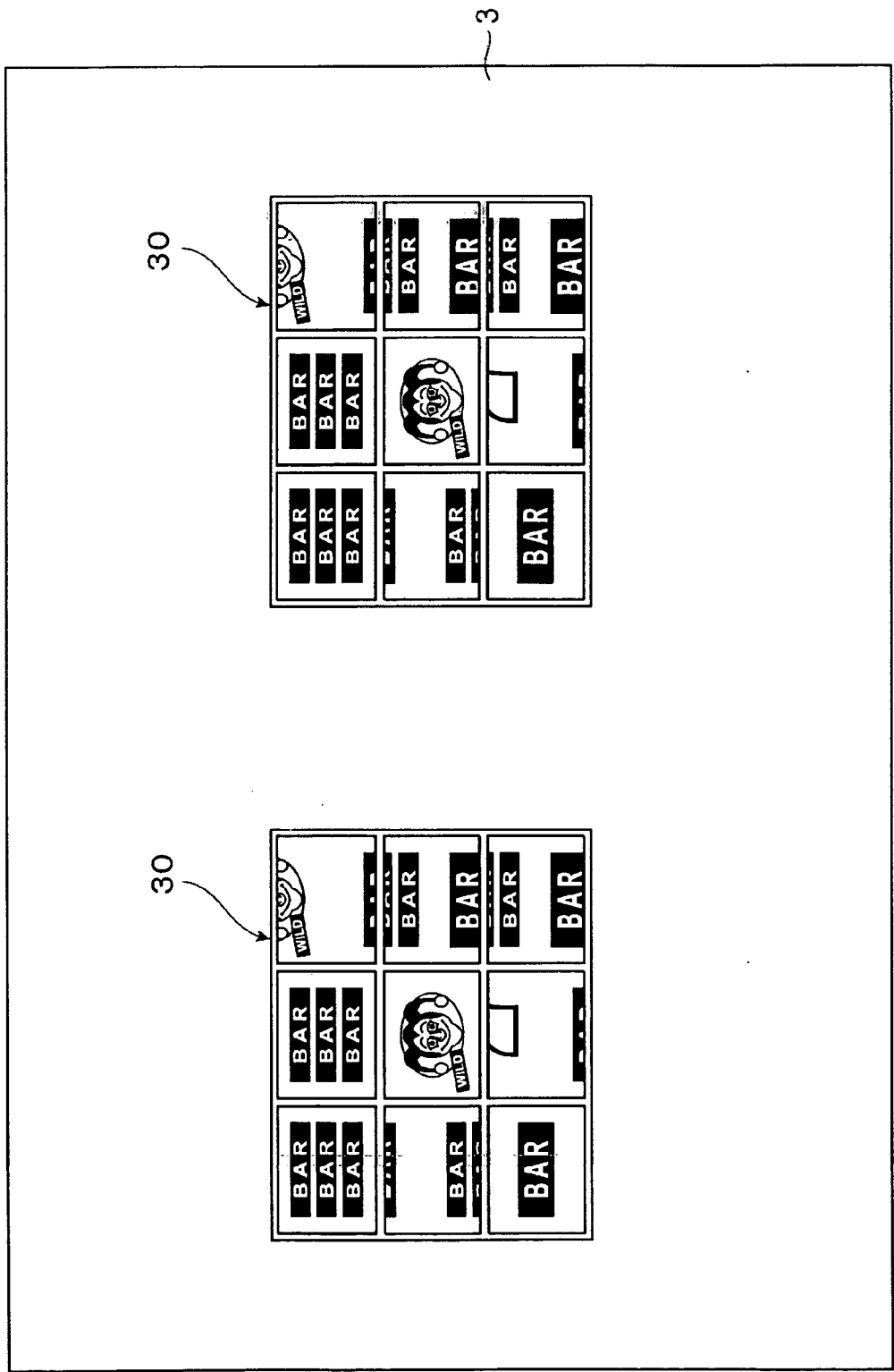


FIG. 9

FIG. 10

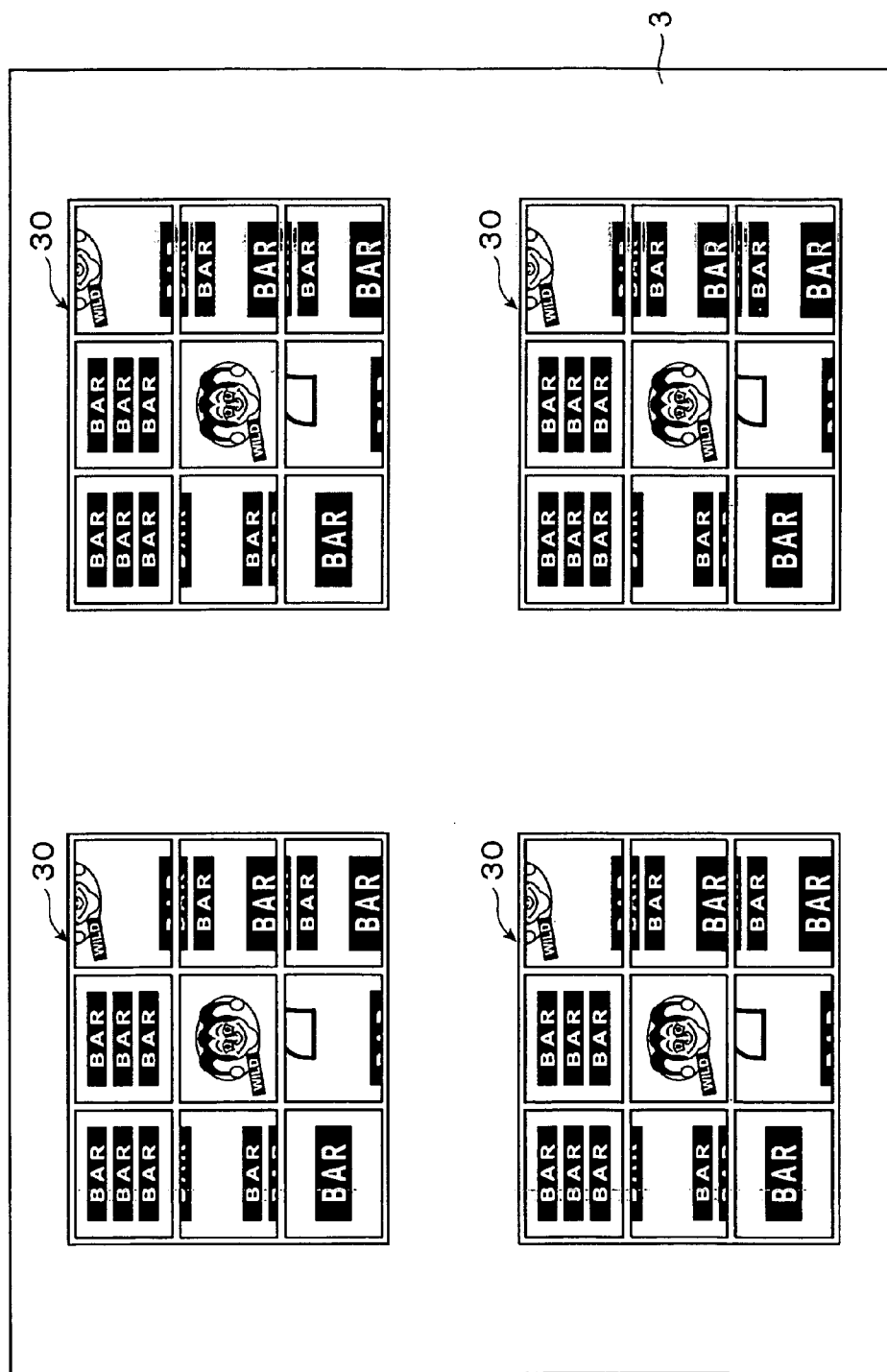


FIG. 11

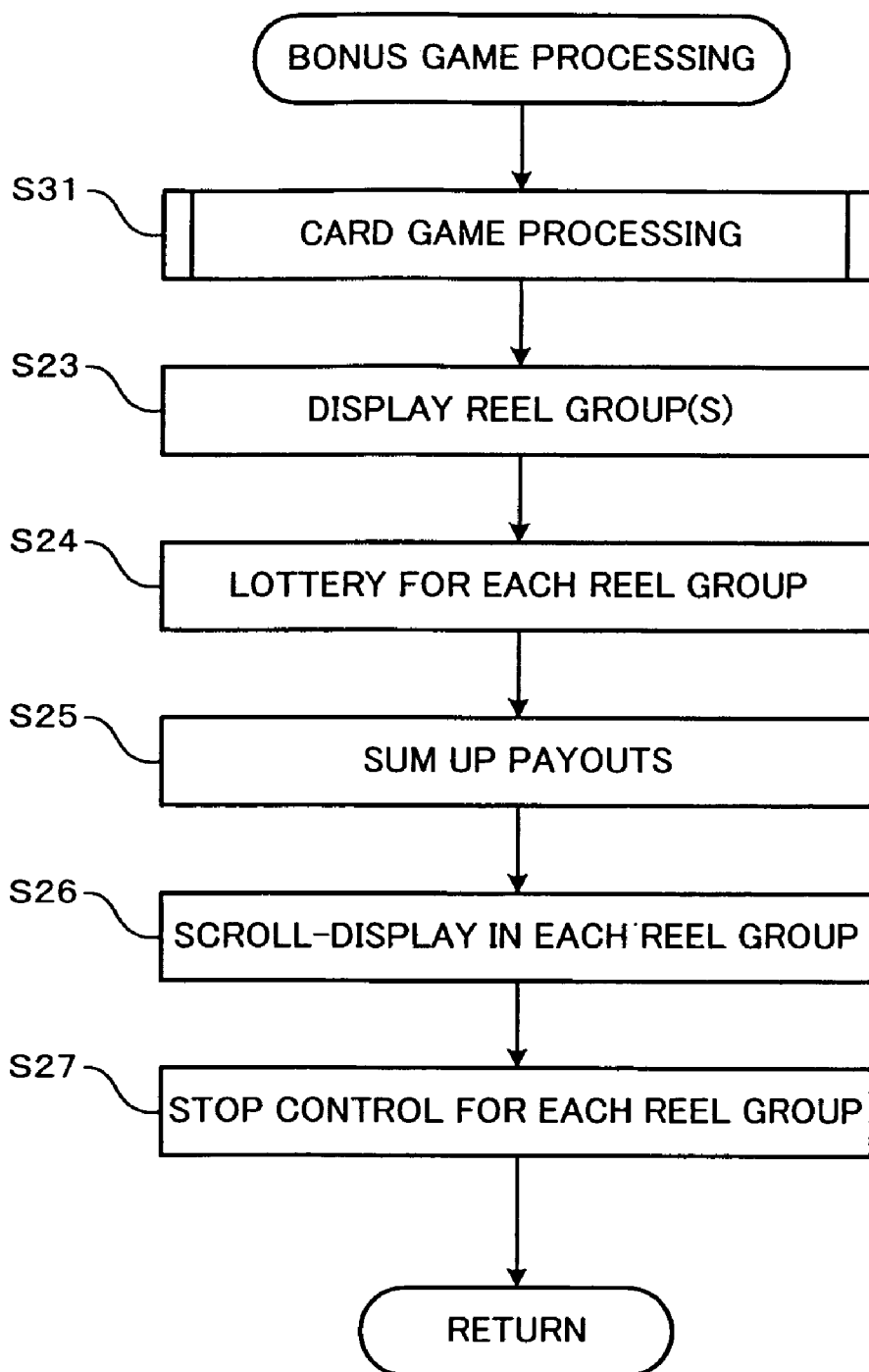


FIG. 12

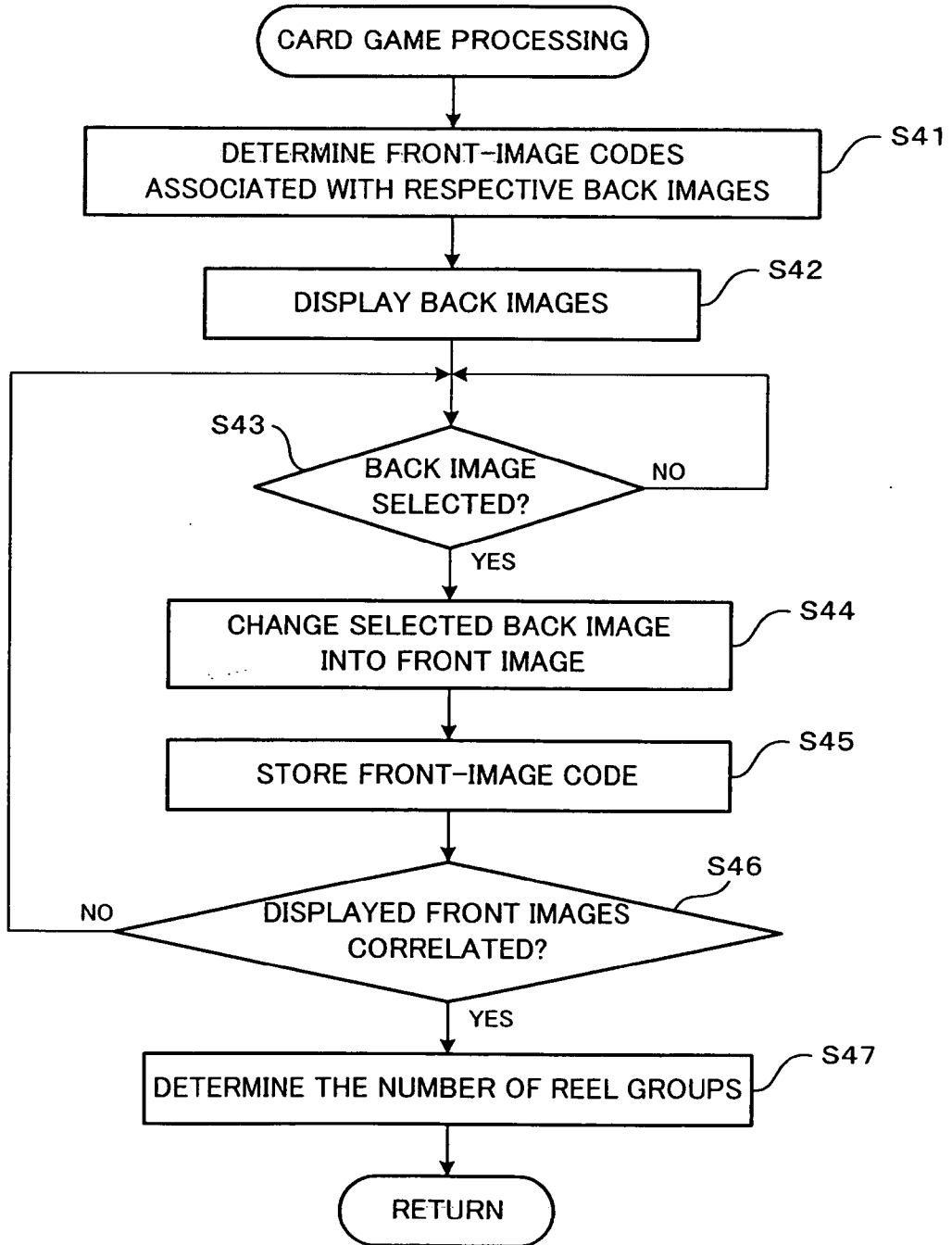


FIG. 13

101
↓

FRONT-IMAGE CODE	DISPLAY CONTENTS OF FRONT IMAGE
1	1 REEL GROUP
2	2 REEL GROUPS
4	4 REEL GROUPS

FIG. 14

100
↙

CONDITION-MAKER CODE	THE NUMBER OF REEL GROUPS
1	1
2	2
4	4

FIG. 15

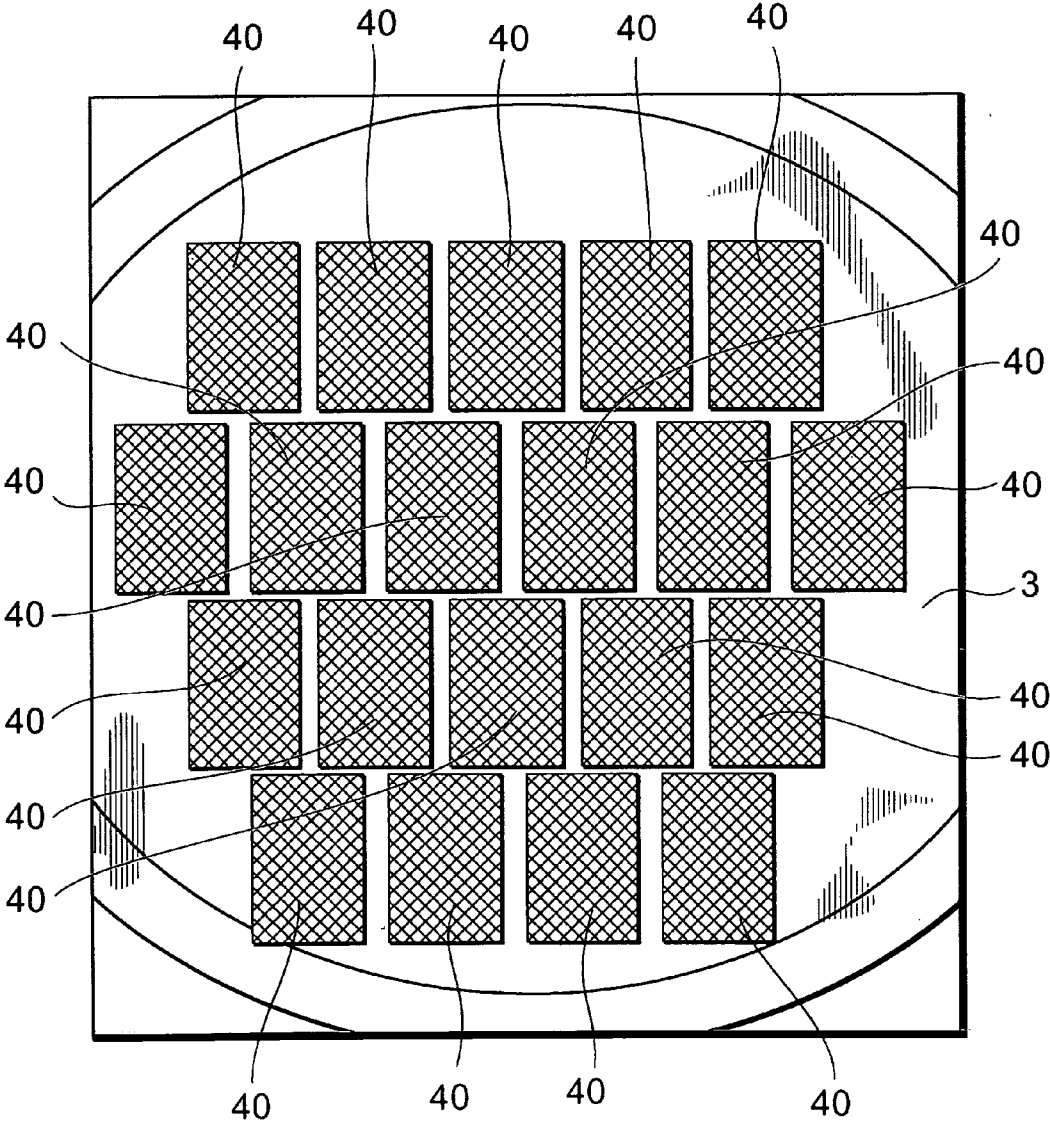


FIG. 16

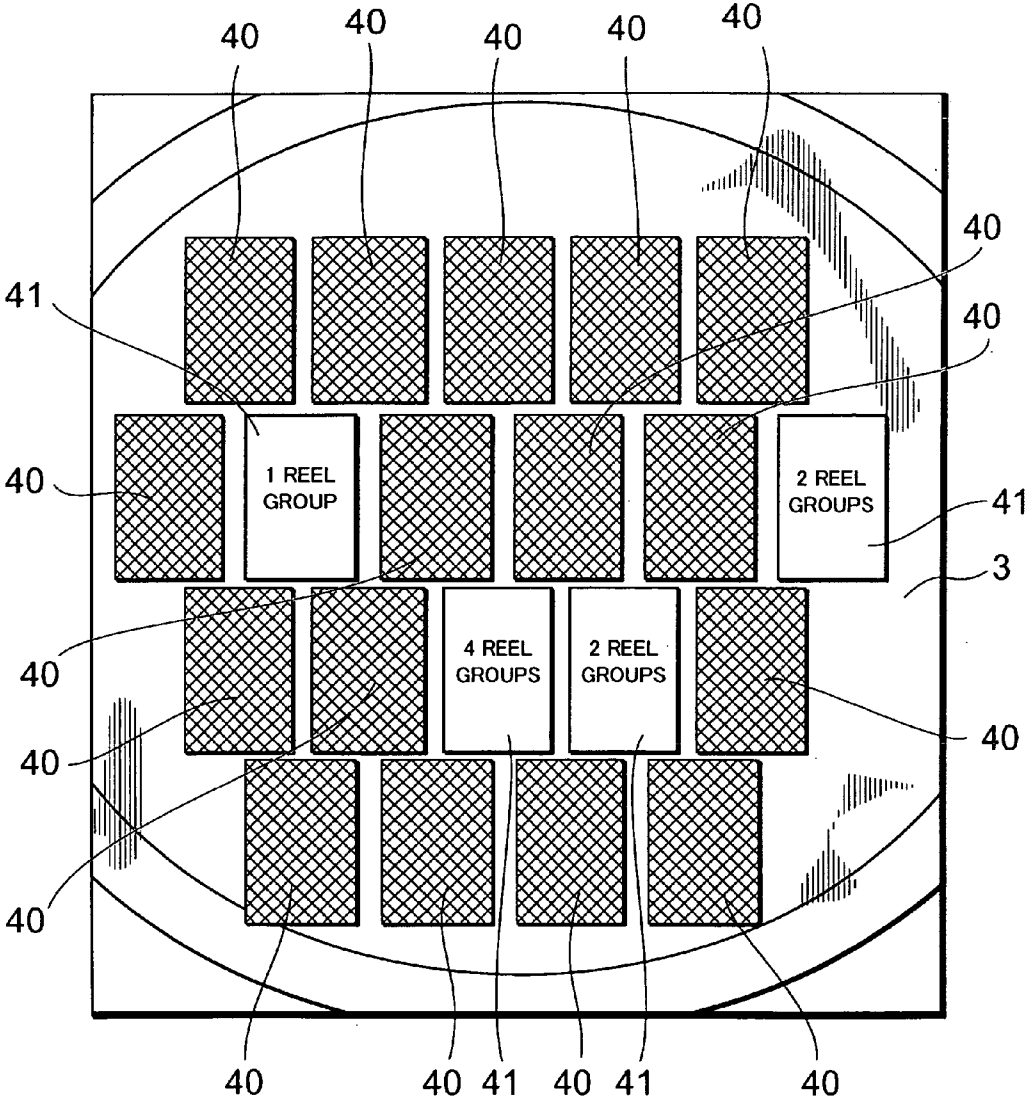


FIG. 17

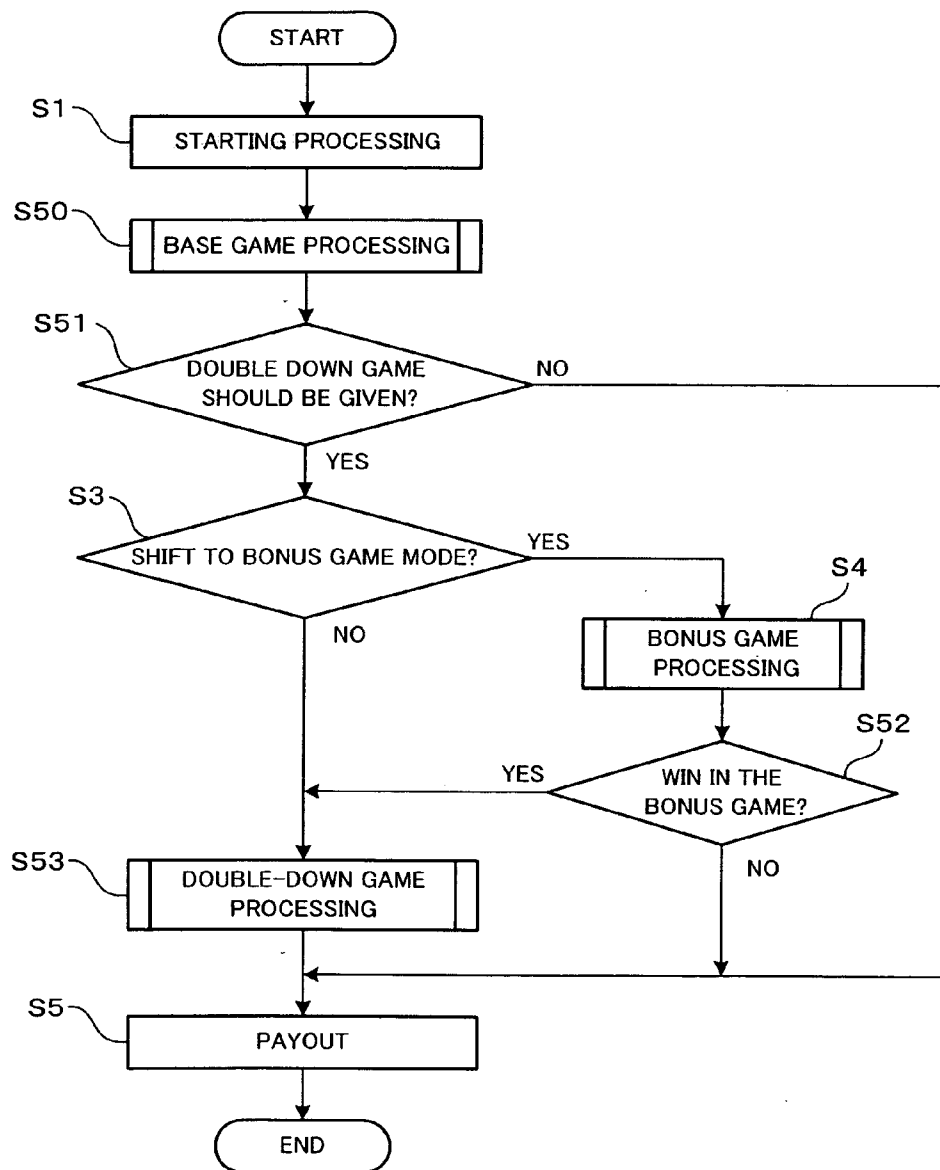


FIG. 18

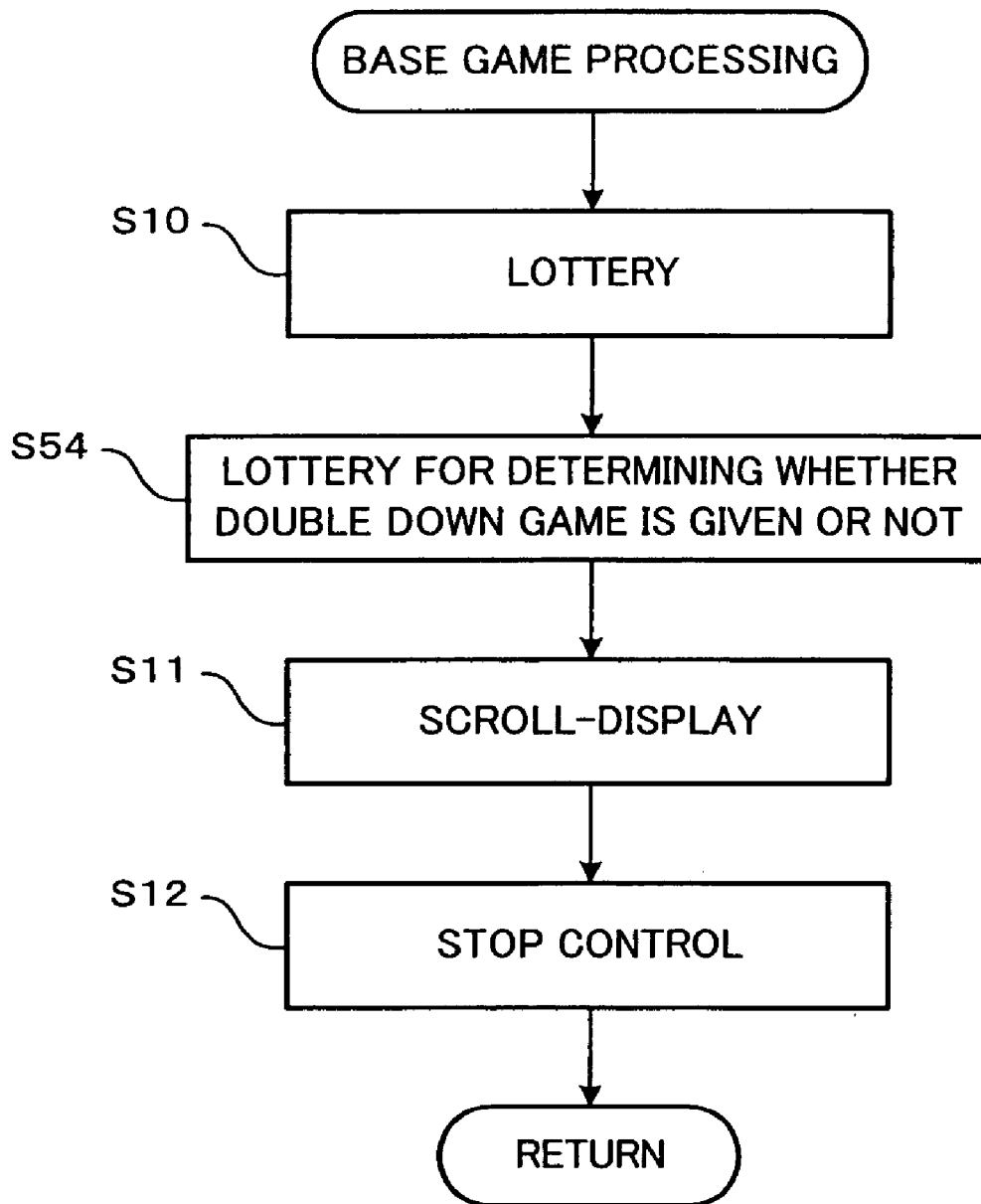


FIG. 19

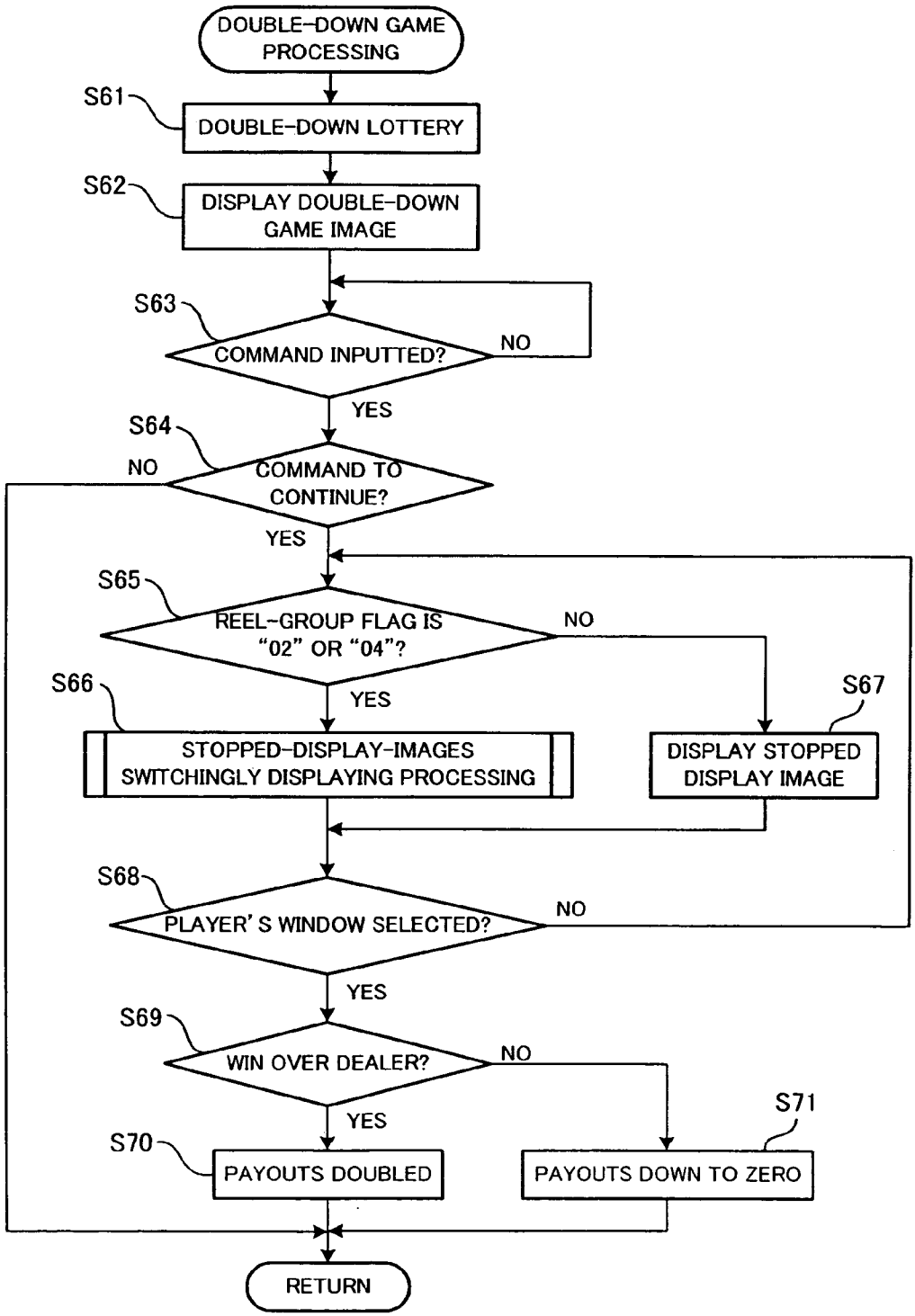


FIG. 20

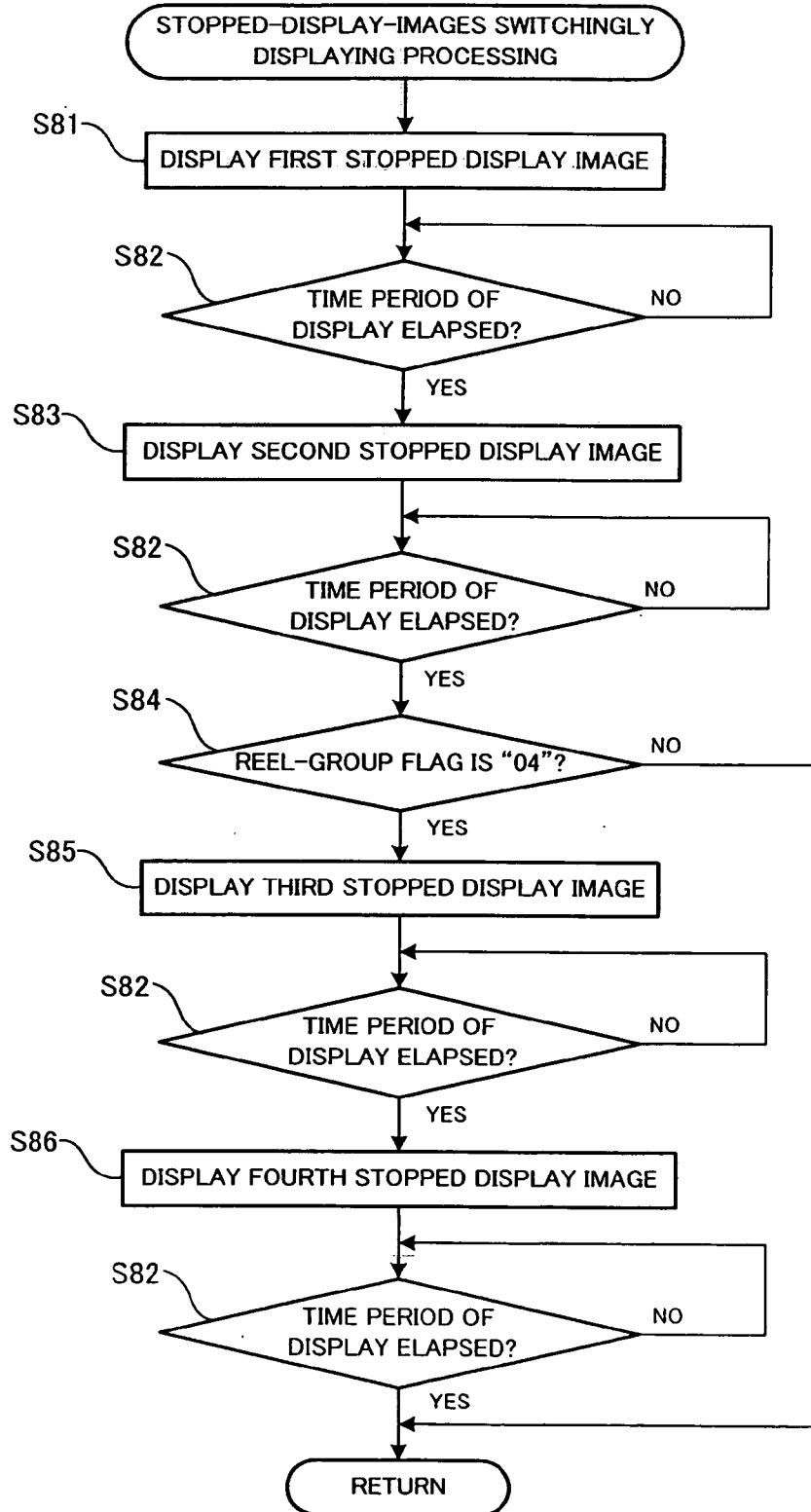
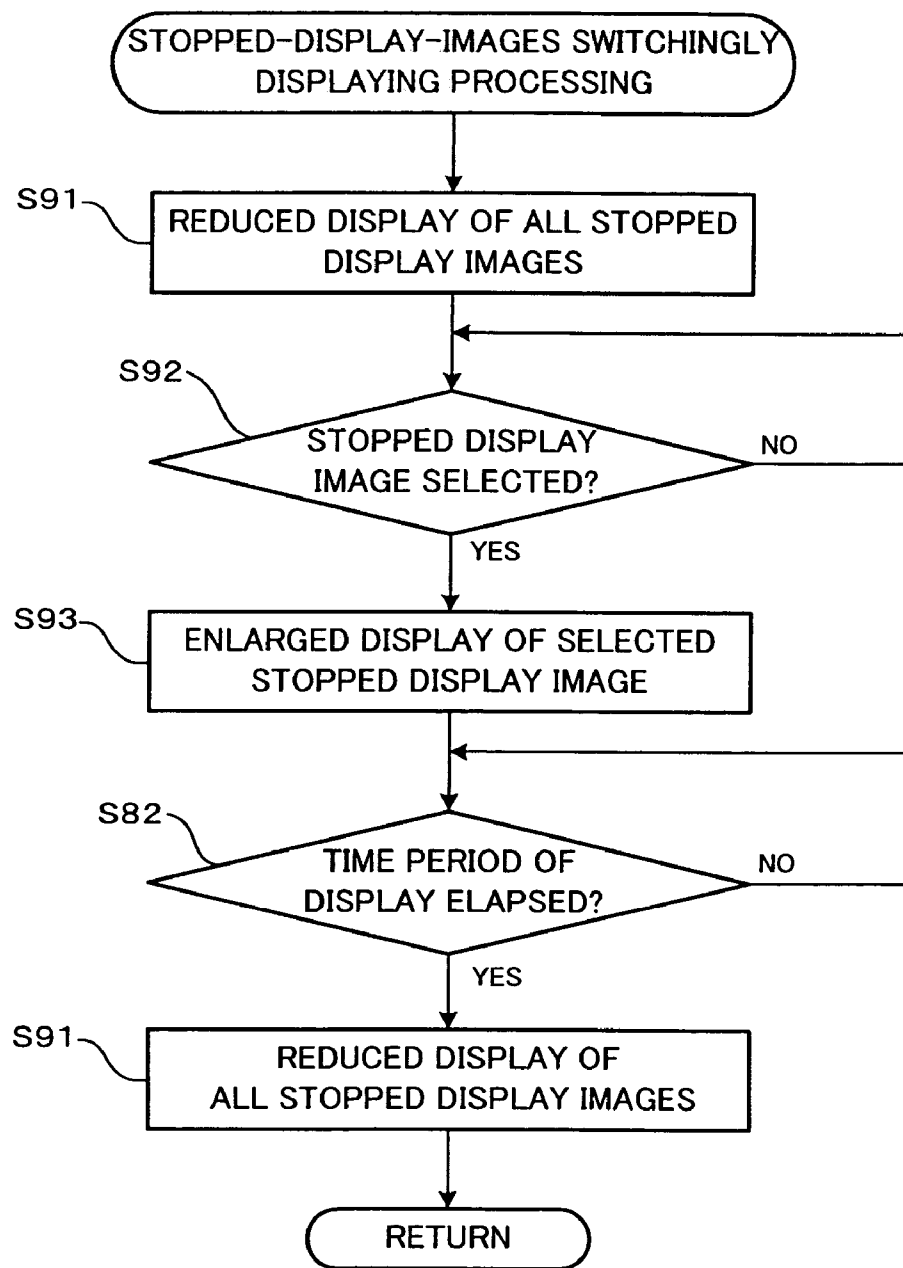


FIG. 21



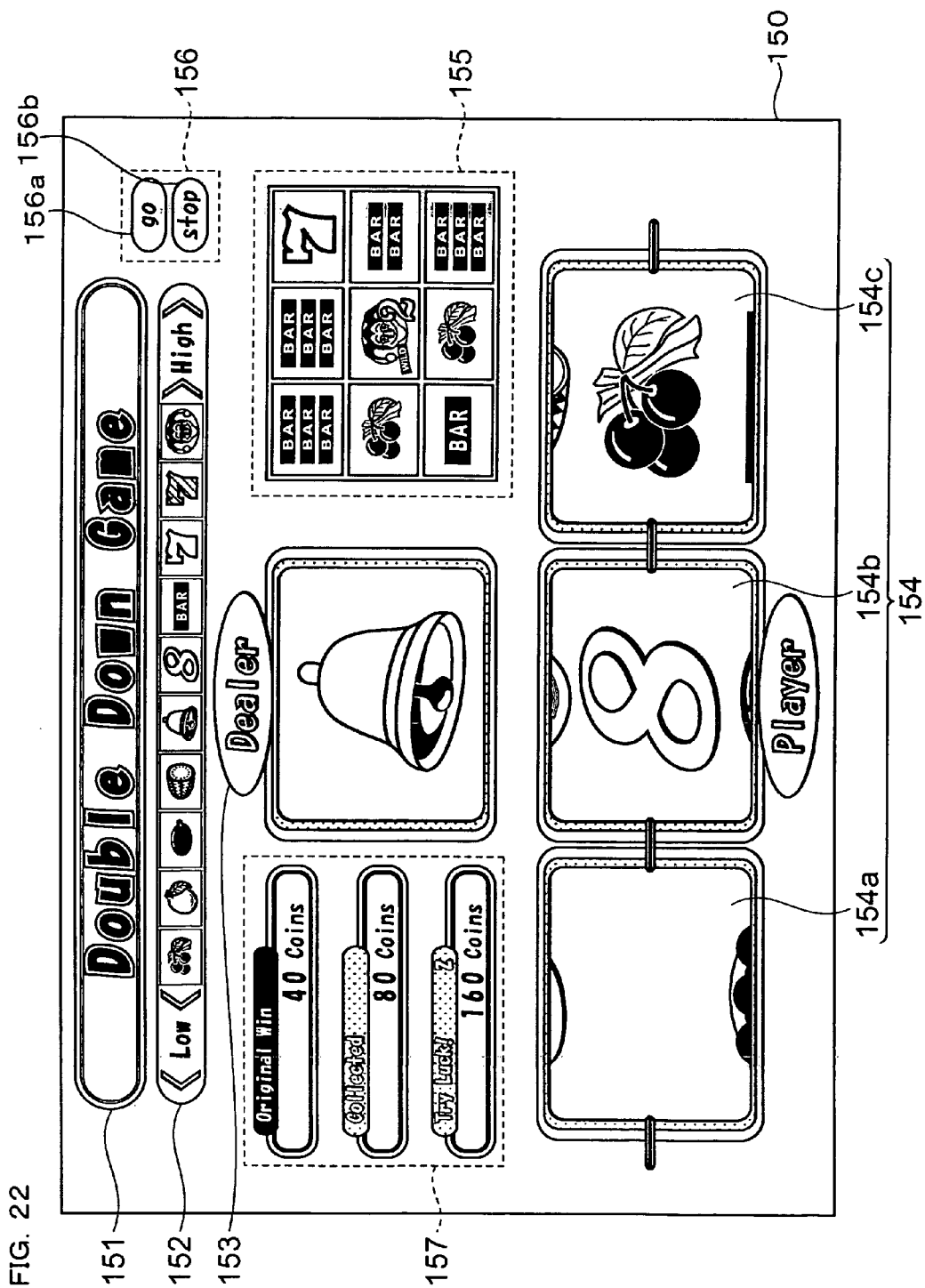
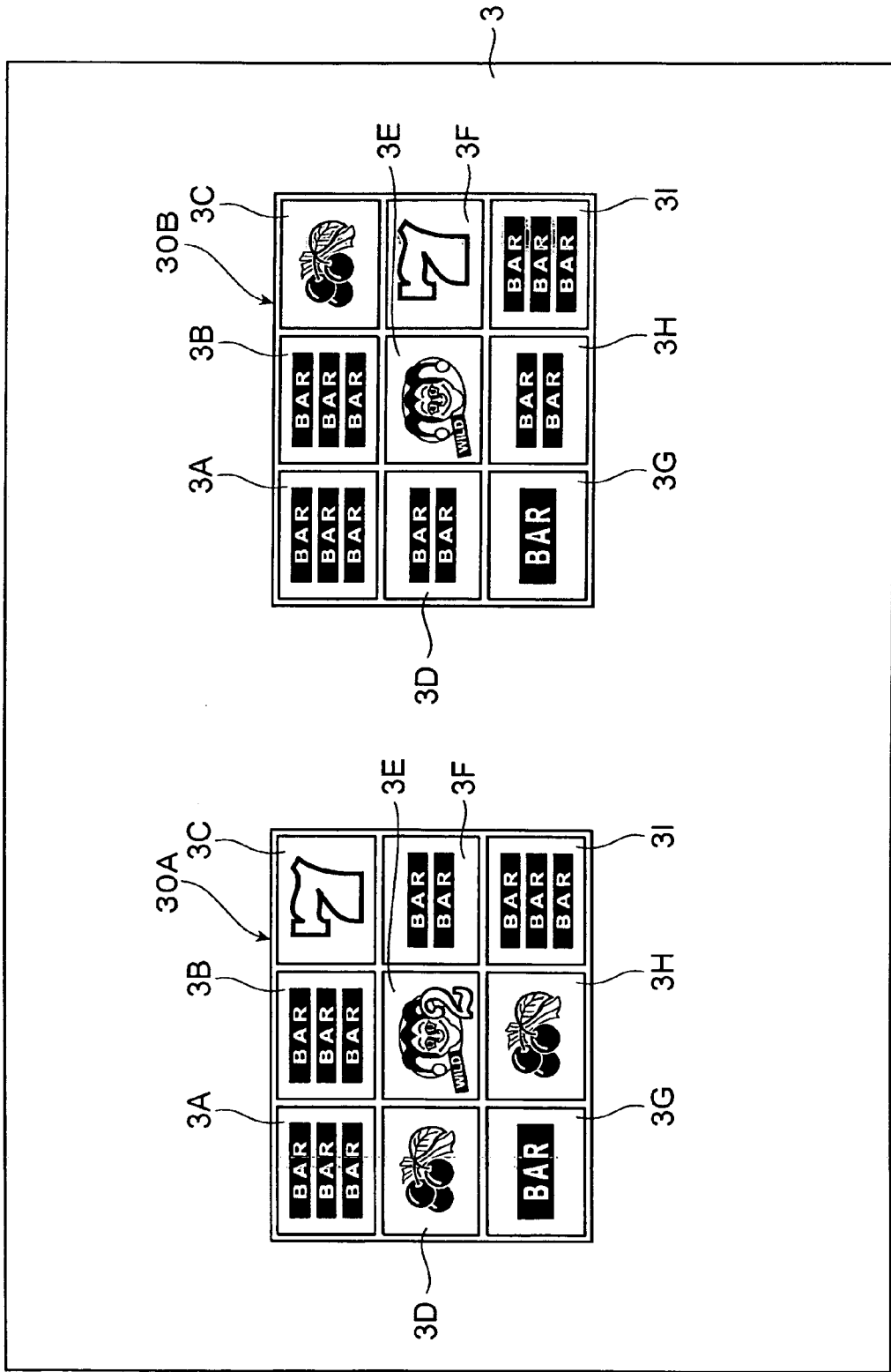


FIG. 23



GAMING MACHINE

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application is based upon and claims the benefit of priority from the prior Japanese Patent Applications No. 2005-132888, filed on Apr. 28, 2005, and No. 2005-209040, filed on Jul. 19, 2005, the entire contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a gaming machine that offers a variable display game, such as a slot machine, a pachislot machine, or the like.

[0004] 2. Description of Related Art

[0005] Known is a gaming machine that offers a variable display game by mechanically rotating reels on which symbols are arranged thus variably displaying the symbols, or by scrollingly displaying images of reels that include symbols thereon. As a gaming machine of this type, there can be mentioned one that has not only a base game but also a bonus game, and offers a variable display game in each of the base game and the bonus game (see Japanese Patent Unexamined Publication No. 11-244453). In this gaming machine, which symbols will be displayed when the reels are stopped are determined by lottery. Based on a lottery result, whether a winning is made or not is determined, and coins, medals, etc. are paid out or the base game shifts to the bonus game.

SUMMARY OF THE INVENTION

[0006] In a variable display game which is played in the above-described gaming machine, symbols stopped in respective reels are involved in a determination of a win. Therefore, a player pays attention to reels while playing a game. However, since reels which are used for the determination of a win are always the same, a player gradually loses his/her attention to the reels, which may cause decrease in attraction of the game to the player. In particular, when the same reels are used for the determination of a win in both of the base and bonus games as in the gaming machine disclosed in the above-described patent document, it is difficult for a player to recognize a shift to the bonus game even though the base game has shifted to the bonus game, because the reels to which the player pays attention are unchanged. In addition to this, it is difficult to increase attraction of the bonus game to the player.

[0007] An object of the present invention is to provide a gaming machine which can increase attraction of a variable display game to a player.

[0008] According to an aspect of the present invention, there is provided a gaming machine comprising a variable display unit that variably displays a plurality of symbols and a processor that controls a display made through the variable display unit. The processor controls the variable display unit so as to display one or more variable display groups each including a plurality of variable display portions in which the symbols are variably displayed. The processor controls a progress of a multiple variable display game which is

given through the variable display unit displaying the variable display groups in each of which the symbols are variably displayed.

[0009] In this aspect, one or more variable display groups are displayed by the variable display unit, and symbols are variably displayed in each of the variable display groups so that the multiple variable display game is given. Accordingly, the game seems fresh to a player, and the player can enjoy quite a new, unconventional game. This makes the game more attractive to a player.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] 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:

[0011] **FIG. 1** is a perspective view of a slot machine according to an embodiment of the present invention;

[0012] **FIG. 2** is a block diagram showing an electrical construction of the slot machine of **FIG. 1**;

[0013] **FIG. 3** is a block diagram detailing an image control circuit shown in **FIG. 2**;

[0014] **FIG. 4** is a flowchart of a main processing which is executed in the slot machine of **FIG. 1** from beginning to end of a game;

[0015] **FIG. 5** is a flowchart of a base game processing;

[0016] **FIG. 6** is a flowchart of a bonus game processing;

[0017] **FIG. 7** exemplifies an image that is displayed on a main display;

[0018] **FIG. 8** exemplifies a stopped-symbol determination table;

[0019] **FIG. 9** shows, as an example, that the main display is displaying two reel groups;

[0020] **FIG. 10** shows, as an example, that the main display is displaying four reel groups;

[0021] **FIG. 11** is a flowchart showing a modification of the bonus game processing;

[0022] **FIG. 12** is a flowchart of a card game processing which is executed in the bonus game processing of **FIG. 11**;

[0023] **FIG. 13** exemplifies a front-image determination table;

[0024] **FIG. 14** exemplifies a number-of-reel-groups determination table;

[0025] **FIG. 15** shows, as an example, that the main display is displaying images of back sides of cards;

[0026] **FIG. 16** shows a state where some of the images of back sides of cards shown in **FIG. 15** have been changed into front-side images;

[0027] **FIG. 17** is a flowchart showing a modification of the main processing;

[0028] **FIG. 18** is a flowchart of a base game processing which is executed in the main processing of **FIG. 17**;

[0029] FIG. 19 is a flowchart of a double-down game processing which is executed in the main processing of FIG. 17;

[0030] FIG. 20 is a flowchart of a stopped-display-images switchingly displaying processing which is executed in the double-down game processing of FIG. 19;

[0031] FIG. 21 is a flowchart showing another example of the stopped-display-images switchingly displaying processing;

[0032] FIG. 22 exemplifies a double-down game image; and

[0033] FIG. 23 shows, as an example, that the main display is displaying two reel groups each of which indicates a winning in a bonus game.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0034] In the following, a certain preferred embodiment of the present invention will be described with reference to the accompanying drawings.

[0035] First, with reference to FIG. 1, a description will be given to a general construction of a slot machine 1 according to an embodiment of the present invention. In the slot machine 1, images of reels including symbols are displayed in a scrolling manner, so as to provide a variable display game, which may be called a slot game. The slot machine 1 offers not only a base game mode but also a bonus game mode. In the base game mode, a base game, which is started unconditionally at the beginning of a game, is played. In the bonus game mode, a bonus game, which follows the base game under a certain condition, is played. In the bonus game mode as well as in the base game mode, a variable display game is played.

[0036] The slot machine 1 includes a main display 3 and a sub display 4. The main display 3 is placed on a front face of a cabinet 2, and has a liquid crystal display device. The sub display 4 is placed on the upper side of the main display 3, and has a liquid crystal display device, too.

[0037] The main display 3 functions as a "variable display unit" of the present invention, and displays thereon one or more reel groups 30. FIG. 1 shows that the main display 3 is displaying one reel group 30, whereas FIG. 9 shows that the main display 3 is displaying two reel groups. The reel group 30 has a total of nine reels 3A, 3B, 3C, 3D, 3E, 3F, 3G, 3H, and 3I, which form three vertical rows and three horizontal rows (see FIG. 7). A player sees the reels 3A to 3I as one unit. The reels 3A to 3I correspond to "variable display portions" of the present invention, and the reel group 30 corresponds to a "variable display group" of the present invention. Both in the base game mode and in the bonus game mode, that is, both in a base game and in a bonus game, each of the reels 3A to 3I displays an image of a reel, which is scrolling as if a mechanical reel is rotating therein, so that symbols travel from top to down. The reel group 30 also has a total of eight pay lines L1 to L8, each of which passes through three of the reels 3A to 3I. The eight pay lines L1 to L8 include ones which correspond to the three vertical rows and three horizontal rows, and ones which correspond to diagonal lines.

[0038] The sub display 4 displays an image relating to a game such as a payout table and a description of a game.

[0039] A control panel 11 which is substantially horizontal is placed on the lower side of the main display 3. The control panel 11 has a coin insertion slot 6, a bill insertion slot 7, a spin switch 8, a 1-BET switch 9, and a maximum BET switch 10.

[0040] A game medium such as a coin or a medal (hereinafter referred to as a "coin") is inserted into the coin insertion slot 6, and a bill is inserted into the bill insertion slot 7. A coin sensor 6a that detects a coin and a bill sensor 7a that detects a bill are provided in the coin insertion slot 6 and the bill insertion slot 7, respectively (see FIG. 2). By pressing the spin switch 8, a slot game is started so that images of reels are displayed in a scrolling manner in the respective reels 3A to 3I. By pressing the 1-BET switch 9 once, one coin is betted. By pressing the maximum BET switch 10, a maximum number of coins bettable per game are betted.

[0041] The cabinet 2 has, in its bottom part, a coin payout opening 13 and a coin tray 14 that receives coins paid out through the payout opening 13. Speakers 12L and 12R are provided on right and left sides of the payout opening 13.

[0042] Next, an electrical construction of the slot machine 1 will be described with reference to FIG. 2.

[0043] A core of the electrical construction of the slot machine 1 is a microcomputer 31 including a main CPU (Central Processing Unit) 32, a RAM (Random Access Memory) 33, and a ROM (Read Only Memory) 34. The main CPU 32 inputs/outputs a signal to/from other components through an I/O port 39, and controls an operation of the whole slot machine 1 in accordance with a program stored in the ROM 34. The RAM 33 stores therein data and programs used by the main CPU 32. For example, after a game is started, the RAM 33 temporarily stores therein a random number which is sampled by a later-described sampling circuit 36. The ROM 34 stores therein programs for execution by the main CPU 32, permanent data, and the like.

[0044] The slot machine 1 has a random number generator 35, a sampling circuit 36, a clock-pulse generating circuit 37, and a frequency divider 38. In accordance with a command from the main CPU 32, the random number generator 35 generates a certain range of random numbers. In accordance with a command from the main CPU 32, the sampling circuit 36 samples arbitrary one out of the random numbers generated by the random number generator 35, and then outputs the sampled random number to the main CPU 32. The clock-pulse generating circuit 37 generates a reference clock used for an operation of the main CPU 32. The frequency divider 38 inputs to the main CPU 32 a signal obtained by dividing the reference clock by a constant period.

[0045] The slot machine 1 further includes a touch panel 3a, a lamp drive circuit 59, a lamp 60, an LED drive circuit 61, an LED 62, a hopper drive circuit 63, a hopper 64, a payout-completion signal circuit 65, a coin counter 66, an image control circuit 71, and a sound control circuit 72.

[0046] The touch panel 3a is provided so as to cover a display screen of the main display 3. The touch panel 3a

detects a position where a player's finger or the like touches, and outputs to the main CPU 32 a position signal that corresponds to the detected position. The lamp drive circuit 59 outputs, to the lamp 60, a signal for lighting the lamp 60 (see FIG. 1), so that the lamp 60 flashes during a game. This flashing serves as an effect for the game. The LED drive circuit 61 controls a flashing display of the LED 62. The LED 62 serves to display the number of credits and the number of acquisition, etc.

[0047] The hopper drive circuit 63 drives the hopper 64 in accordance with a control made by the main CPU 32. The hopper 64 causes a coin to be paid out through the payout opening 13 into the coin tray 14. The coin counter 66 counts coins which have been paid out by the hopper 64, and outputs data about the number of coins to the payout-completion signal circuit 65. When the number of coins, the data of which are outputted from the coin counter 66, reaches a predetermined value, the payout-completion signal circuit 65 outputs to the main CPU 32 a signal for notifying that payout of coins has been completed.

[0048] The image control circuit 71 controls image displays on the respective main and sub displays 3 and 4 so that the main and sub displays 3 and 4 displays various images, which include the images of reels each having symbols thereon.

[0049] As shown in FIG. 3, the image control circuit 71 has an image control CPU 71a, a work RAM 71b, a program ROM 71c, an image ROM 71d, a video RAM 71e, and a VDP (Video Display Processor) 71f. Based on a parameter defined by the microcomputer 31, and in accordance with an image control program concerning displays on the main and sub displays 3 and 4 which is stored in the program ROM 71c, the image control CPU 71a determines images, such as images of reels and images of symbols that displayed when the reels are stopped, will be displayed on the respective main and sub displays 3 and 4. The work RAM 71b functions as a temporary storage which is used when the image control CPU 71a executes the image control program.

[0050] The program ROM 71c stores therein an image control program, various selection tables, and the like. The image ROM 71d stores therein dot data for forming images. The dot data include image data for symbols which are used in the base game and the bonus game. The video RAM 71e functions as a temporary storage which is used when the VDP 71f forms images. The VDP 71f, which includes a control RAM 71g, forms images reflecting the display contents of the main and sub displays 3 and 4 which have been determined by the image control CPU 71a, and then outputs the image thus formed to the respective main and sub displays 3 and 4.

[0051] Referring to FIG. 2 again, the sound control circuit 72 outputs to the speakers 12L and 12R a sound signal for making the speakers 12L and 12R output a sound. For example, in an appropriate time after a game is started, a sound for enhancing amusement of the game is outputted from the speakers 12L and 12R.

[0052] Next, an operation of the slot machine 1 will be described with reference to flowcharts shown in FIGS. 4 to 6. In FIGS. 4 to 6, in FIGS. 11, 12, 17 to 21 which will be referred to later, and in the following description, a step is abbreviated as "S".

[0053] In the main processing shown in FIG. 4, the slot machine 1 first executes a starting processing (S1). Then, in the base game mode, a base game processing is executed (S2), and subsequently the processing proceeds to S3. In S3, whether the game mode should shift to the bonus game mode or not is determined. When it is determined that the game-mode should shift to the bonus game mode (S3: YES), a bonus game processing is executed (S4). S4 is followed by S5. When it is determined that the game mode should not shift to the bonus game mode (S3: NO), the processing does not go to S4 but to S5. In S5, coins, the number of which depends on a winning combination, are paid out. After S5, the main processing is completed.

[0054] S1 to S5 will be described in more detail below.

[0055] In S1, in accordance with a controlling made by the main CPU 32, the slot machine 1 receives a game-starting operation by a player. The slot machine 1 is a gaming machine of coin-insertion type. That is, in starting a game, a player inserts a coin into the coin insertion slot 6, or alternatively presses the 1-BET switch 9 or the maximum BET switch 10 when a credit is left. Then, he/she presses the spin switch 8. Hereinafter, these operations for starting a game will be referred to as a "starting operation". Upon the starting operation, a start signal is outputted from the spin switch 8 to the main CPU 32.

[0056] In S2, the base game processing is executed in accordance with the flowchart shown in FIG. 5. In the base game processing, first, a lottery is executed (S10). In the lottery, the main CPU 32 determines stopped symbols which are symbols displayed in the respective reels 3A to 3I when the reels are stopped. In the slot machine 1, during the lottery being executed in S10, the main CPU 32 commands the image control circuit 71 to display an effect image on the sub display 4.

[0057] Here, a specific description will be given to the lottery in S10.

[0058] First, the main CPU 32 commands the random number generator 35 to generate a certain range of random numbers, and then commands the sampling circuit 36 to sample an arbitrary one out of the random numbers generated by the random number generator 35. The main CPU 32 refers to a symbol-code determination table (not shown) in order to acquire a symbol code which is associated with the sampled random number. The symbol-code determination table is stored in the ROM 34, and stores therein symbol codes associated with respective random numbers.

[0059] The main CPU 32 uses the acquired symbol code as a search key in referring to a stopped-symbol determination table 90 (see FIG. 8) which is stored in the ROM 34, to thereby determine which symbol will be stopped in each of the reels 3A to 3I. The stopped-symbol determination table 90 is a table having a code area 90a, a first symbol area 90b, and a second symbol area 90c. The code area 90a stores therein symbol codes. The first and second symbol areas 90b and 90c store therein symbols which are associated with the respective codes.

[0060] In the first and second symbol areas 90b and 90c, codes of symbols corresponding to code numbers "0" to "31" are registered. Registered in the first symbol area 90b are codes of symbols which will be stopped in the reels 3A to 3D and 3F to 3I, other than the central reel 3E. Registered

in the second symbol area 90c are codes of symbols which will be stopped in the central reel 3E. In this embodiment, Wild Jokers 92a, 92b, and 92c that locate in the second symbol area 90c and correspond to the code number "0", "1", or "30" are symbols each having an advantage over other symbols and having an image of a human face, a character string of "WILD", and a figure such as "2", "4", etc. in combination, as shown in FIG. 8. The figure shown in the Wild Joker 92a, 92b, or 92c indicates the number of reel groups which will be displayed on the main display 3 during the bonus game.

[0061] A set of the above-described sampling of a random number, reference to the symbol-code determination table, and reference to the stopped-symbol determination table 90 is performed once for each of the reels 3A to 3I included in each reel group 30 which is displayed on the main display 3. When, as shown in FIG. 1, a single reel group 30 is displayed, a set of the sampling of a random number and the references to the tables is performed once for each of the reels 3A to 3I, that is, nine times in total. As a result, which symbols will be stopped in the respective reels 3A to 3I is determined.

[0062] After which symbols will be stopped in the respective reels 3A to 3I is determined, the main CPU 32 refers to a winning determination table (not shown) which is stored in the ROM 34, in order to determine whether a winning is made or not. The winning determination table stores therein combinations of codes (hereinafter referred to as "code patterns") each associated with either one of "win" and "no win". The main CPU 32 refers to the winning determination table using, as a search key, a code pattern of the stopped symbols which have been determined in the aforementioned manner, to thereby determine whether a winning is made or not.

[0063] Subsequently, the main CPU 32 refers to a payout determination table (not shown) which is stored in the ROM 34, to determine a payout number for a winning combination made. The payout determination table stores therein payout numbers each associated with each of winning code patterns. After a payout number is determined, the lottery in S10 ends. Then, referring to FIG. 5 again, images of reels are displayed in a scrolling manner (S11).

[0064] In S11, the main display 3 displays an image as shown in FIG. 7. At this time, a reel group 30 including nine reels 3A to 3I is displayed substantially at the center of the main display 3. A title indicator 83 including a character string of "BONUS SPIN" and a description of game contents is provided on the upper side of the reel group 30. An indicator 84 including a total BET number indicator 84a, a PAID number indicator 84b, an "INSERT COIN/BET" indicator 84c, and a CREDIT number indicator 84d is provided on the lower side of the reel group 30. BET number indicators 82a, each of which indicates a BET number for each of the eight pay lines L1 to L8, are provided so as to surround the reel group 30.

[0065] Upon a start of a game, in accordance with a command from the main CPU 32, the images of reels are scrolled in the respective reels 3A to 3I of the reel group 30.

[0066] Then, a stop control is operated (S12). More specifically, a speed of scrolling is slowed down, and the stopped symbols which have been determined based on a

result of the lottery in S10 are displayed in the reels 3A to 3I. Then, the base game processing ends.

[0067] Referring to FIG. 4 again, in S3, the main CPU 32 determines, based on the result of the lottery (S10) which has been executed in the base game processing S2 and in accordance with a shifting condition for shifting from the base game mode to the bonus game mode, whether a game mode should shift from the base game mode to the bonus game mode or not. In this embodiment, the shifting condition is that a symbol stopped in the central reel 3E is a Wild Joker 92a, 92b, or 92c. When this shifting condition is satisfied, it is determined that the game mode should shift to the bonus game mode. The shifting condition can be set variously and may be that a predetermined combination of symbols is displayed.

[0068] When it is determined that the game mode should shift to the bonus game mode (S3: YES), the main display 3 displays the Wild Joker 92a as a symbol stopped in the central reel 3E, and a message of "GET THE SPECIAL BONUS!!", for example. Then, the main CPU 32 shifts the game mode to the bonus game mode in which the bonus game processing is then performed (S4).

[0069] In S4, the bonus game processing is executed in accordance with the flowchart shown in FIG. 6.

[0070] In the bonus game processing, first, the main CPU 32 determines whether the main display 4 should display a single reel group 30 or two or more reel groups 30. More specifically, the main CPU 32 determines whether a multiple variable display game where two or more reel groups 30 are displayed and symbols are variably displayed in each of reel groups 30 is won or not (S21). When the symbol stopped in the central reel 3E is any one of the Wild Jokers 92b and 92c, the main CPU 32 determines that the multiple variable display game is won (S21: YES), and the processing proceeds to S22. When the symbol stopped in the central reel 3E is the Wild Joker 92a, the main CPU 32 determines that the multiple variable display game is not won (S21: NO), and the processing proceeds to S28.

[0071] In S22, when the symbol stopped in the central reel 3E is the Wild Joker 92b, the main CPU 32 determines that the number of reel groups 30 is two and sets a reel-group flag to "02". When the symbol stopped in the central reel 3E is the Wild Joker 92c, the main CPU 32 determines that the number of reel groups 30 is four and sets the reel-group flag to "04".

[0072] In S28, the main CPU 32 determines that the number of reel groups 30 is one, and sets the reel-group flag to "01".

[0073] After S22 or S28, the processing proceeds to S23, in which the main CPU 32 controls the main display 3 so that the main display 3 displays such a number of reel groups 30 as determined in S22 or S28. At this time, the main CPU 32 refers to the reel-group flag, and makes the main display 3 display reel groups 30 the number of which corresponds to the value set at the flag. For example, when the reel-group flag has been set to "01", one reel group 30 including the reels 3A to 3I is displayed substantially at the center of the main display 3, as shown in FIG. 1. When the reel-group flag has been set to "02", the main display 3 displays an image which shows, as shown in FIG. 9, two reel groups 30 each including the reels 3A to 3I and arranged side by side.

When the reel-group flag has been set to "04", the main display 3 displays an image which shows, as shown in FIG. 10, four reel groups 30 each including the reels 3A to 3I and arranged in two rows and two columns.

[0074] When in S23 the main display 4 displays two or more reel groups 30, the main CPU 32 controls a progress of the multiple variable display game in S24 to S27.

[0075] In S24, the main CPU 32 executes a lottery for each of the reel groups 30 displayed on the main display 3. Here, the same processing as in S10 of the base game processing described above is executed with respect to each reel group 30, to determine stopped symbols in the respective reels 3A to 3I of each reel group 30. After the stopped symbols are determined, the main CPU 32 determines, with respect to each reel group 30, whether a winning is made or not and also determine a payout number.

[0076] After S24, the processing proceeds to S25 in which the main CPU 32 sums up the payout numbers for the respective reel groups 30 which have been determined in S24, and then the main CPU 32 stores the sum into the RAM 33.

[0077] S25 is followed by S26 in which, like in S11 of the base game processing described above, images of reels are scrollingly displayed in each of the reel groups 30.

[0078] S26 is followed by S27 in which, like in S12 of the base game processing described above, a stop control is operated for each of the reel groups 30.

[0079] A series of S24 to S27 is a processing for giving a free game, and is executed one after another without any operation made by a player. The number of times this series is executed is a predetermined number of free games. Then, the bonus game processing comes to an end.

[0080] Referring to FIG. 4 again, in S5, when a winning has been made in the base game or the bonus game, coins the number of which depends on a winning combination are paid out. When the bonus game has been played, coins, the number of which corresponds to the sum of payout numbers calculated out in S25, are paid out. To be more specific, the main CPU 32 commands the hopper drive circuit 63 to pay out coins, so that the hopper drive circuit 63 drives the hopper 64 to pay out coins through the payout opening 13 into the coin tray 14. The coins thus paid out by the hopper 64 are counted by the coin counter 66. When the number of coins reaches a predetermined value, the payout-completion signal circuit 65 inputs a signal to the main CPU 32 so that the payout is completed.

[0081] In the slot machine 1 of this embodiment, as thus far described above, the main display 3 displays reel groups 30 which independently provide variable display games so that the multiple variable display game is given. Accordingly, the game seems fresh to a player, and the player can enjoy quite a new, unconventional game. This makes the game more attractive to a player.

[0082] Moreover, a player feels as if he/she could win at a higher probability because the number of reel groups 30 increases. This efficiently makes the game more attractive to a player.

[0083] The number of reel groups 30 which are displayed on the main display 4 is changed in accordance with a figure

indicated on the Wild Joker 92a, 92b, and 92c. This adds variation to the game which can therefore attract a player all the more.

[0084] Whether a winning is made or not and which payout number should be given are determined for each reel group 30, and then the payout numbers determined in the respective reel groups 30 are summed up, so that coins corresponding to the sum are paid out. Consequently, a payout given to a player can get higher in proportion to the number of reel groups 30. This makes the game more attractive to a player.

[0085] In the base game mode, a variable display game using a single reel group 30 is provided. Only after the game mode shifts to the bonus game mode, the multiple variable display game using reel groups 30 can be provided. Therefore, a player can clearly recognize a shift to the bonus game mode, and also he/she pays greater attention to the shift while playing a game.

[0086] Next, a modification of the bonus game processing will be described with reference to FIGS. 11 to 16. In the following, the same processings as described above are denoted by the common step (S) number, without a specific description thereof.

[0087] In a bonus game processing of this modification, first, a card game processing is executed (S31 of FIG. 11). In the card game processing, the number of reel groups 30 which will be displayed during the bonus game is determined. Then, the reel groups 30 the number of which is determined in S31 are displayed on the main display 4 (S23). A series of S24 to S27, which is the same as that of the bonus game processing shown in FIG. 6, is sequentially executed. Thus, the bonus game processing ends.

[0088] The card game processing is executed for the purpose of giving an auxiliary game by which the number of reel groups 30 displayed during the bonus game is determined. First, as shown in FIG. 15, images of back sides of cards (hereinafter referred to simply as "back images") 40 are displayed on the main display 3. Here, a player is allowed to select a desired back image 40. When a player selects a back image 40, the selected back image 40 is changed into an image of a front side of a card (hereinafter referred to simply as a "front image") 41 on which the number of reel groups 30 displayed during the bonus game is indicated, as shown in FIG. 16. When the front image 41 thus displayed satisfies a predetermined condition, the number of reel groups 30 which will be displayed during the bonus game is determined.

[0089] In the following, the card game processing will be described along with a flowchart shown in FIG. 12.

[0090] First, the main CPU 32 determines front-image codes that are associated with the respective back images 40 (S41). Each of the back images 40 has its own identification number. Based on the identification number of each back image 40 and a random number sampled by the sampling circuit 36, the main CPU 32 determines front-image codes associated with the respective back image 40. The front-image code is numeric data such as 1, 2, and 4, and serves as a determinant of the number of reel groups 30 which will be displayed during the bonus game.

[0091] After S41, the main CPU 32 displays the back images 40 on the main display 3 (S42). All the back images

40 have the same color and the same design, and therefore a player sees all of them as the same objects.

[0092] After **S42**, the main CPU **32** determines whether a player has selected any of the back images **40** or not (**S43**). At this time, the touch panel **3a** receives an input made by a player for a section of a back image **40**. The touch panel **3a** stays waiting until a player makes an input, that is, until a player touches the touch panel **3a**. When a player selects a desired back image **40** by touching where the back image **40** is located with his/her finger or the like (**S43**: YES), the touch panel **3a** outputs to the main CPU **32** a position signal that corresponds to the touched position.

[0093] After **S43**, in accordance with the position signal received from the touch panel **3a**, the main CPU **32** changes the selected back image **40** into a front image **41** that is associated with the selected back image **40** (**S44**).

[0094] In **S44**, based on the position signal received from the touch panel **3a**, the main CPU **32** identifies which back image **40** is selected. Then, the main CPU **32** acquires, among the front-image codes associated with the respective back images as determined in **S41**, a front-image code associated with the selected back image.

[0095] The main CPU **32** then refers to a front-image determination table **101** (see **FIG. 13**) which is stored in the ROM **34**, and determines a front image **41** that corresponds to the acquired front-image code. The front-image determination table **101** stores therein display contents of front images **41** that correspond with the respective codes. For example, when the front-image code is "1" a corresponding front image **41** is one indicated with "1 Reel Group", and when the front-image code is "4" a corresponding front image **41** is one indicated with "4 Reel Groups". Like this, the front-image code number is identical to the number of reel groups **30** which is indicated on a corresponding front image **41**.

[0096] The main CPU **32** commands the image control circuit **71** to generate an image that reflects display contents of a front image **41** determined in the above-described manner. Then, the main CPU **32** controls the main display **3** so that the main display **3** displays the generated image at a position where the selected back image is located.

[0097] After **S44**, the main CPU **32** stores into the RAM **33** the front-image code that is associated with the selected back image (**S45**).

[0098] After **S45**, the main CPU **32** determines whether front images **41** displayed on the main display **3** are correlated or not (**S46**). In this embodiment, when a pair of front images **41** having the same contents is displayed on the main display **3**, the main CPU **32** determines that correlation is achieved.

[0099] In **S46**, the main CPU **32** first determines whether two or more front-image codes are stored in the RAM **33** or not. When two or more front-image codes are not stored, it is determined that the correlation is not achieved (**S46**: NO), and the processing returns to **S43**.

[0100] When two or more front-image codes are stored in the RAM **33**, the main CPU **32** then determines whether there are identical ones among those front-image codes or not. When there are identical front-image codes, it is determined that the identical front images **41** are correlated (**S46**:

YES). Thus, the identical front-image code is, as a condition-maker code, stored into the RAM **33**, and the processing proceeds to **S47**. When there is no identical front-image code, it is determined that the displayed front images **41** have no correlation (**S46**: NO), and the processing returns to **S43**.

[0101] In this manner, the back images **40** are selected and the front images **41** are displayed one by one. **S43** to **S46** are repeated until a pair of front images **41** having the same contents is displayed.

[0102] In **S47**, the main CPU **32** determines the number of reel groups **30** which will be displayed on the main display **4** during the bonus game. Here, the main CPU **32** refers to a number-of-reel-groups determination table **100** shown in **FIG. 14**, using as a search key the condition-maker code that was in **S46** stored into the RAM **33** so as to determine the number of reel groups **30**. The number-of-reel-groups determination table **100** stores therein the numbers of reel groups associated with the respective condition-maker codes. For example, when the condition-maker code stored in the RAM **33** is "2", it is determined that two reel groups **30** will be displayed during the bonus game.

[0103] As thus far described above, the slot machine **1** which executes the bonus game processing of this modification leads to the same effect as of the above-described embodiment, that is, the effect that the game can be more attractive to a player because of the multiple variable display game. In addition to this, a player can actively participate in determination of the number of reel groups **30**, because the number of reel groups **30** depends on a result of the card game which is played by the player.

[0104] In **S46**, when a combination of front images **41** displayed creates a certain appearance, name, concept, or the like, the correlation may be achieved. Alternatively, the number of reel groups **30** may be determined not based on correlation between front images **41** but based on a single front image **41** having a particular image.

[0105] The card game processing is not limited to the above-described one, but may be one similar to a concentration game.

[0106] Next, a modification of the main processing will be described with reference to **FIG. 17**. A main processing of this modification differs from the above-described one shown in **FIG. 4**, in that it offers not only the base game and the bonus game but also a double down game which will be detailed later. In the following, the same processings as described above are denoted by the common step (S) number, without a specific description thereof.

[0107] In a main processing shown in **FIG. 17**, the slot machine **1** first executes a starting processing (**S1**) which is the same as described above, and then executes a base game processing **S50**. The base game processing executed in **S50** differs from the above-described base game processing executed in **S2**, in that as shown in **FIG. 18 a** lottery (**S54**) is executed between **S10** and **S11** in order to determine whether a double down game is given or not. In **S54**, a lottery for determining whether the double down game is given or not is executed. In this lottery, whether the double down game is given or not is determined by sampling a random number through the sampling circuit **36** and then referring to a table in which predetermined ranges of random

numbers are associated with give or not-give of a double down game. Then, data about the lottery result is set at a double-down flag.

[0108] After S11 and S12 which are the same as those in FIG. 5 described above, the base game processing comes to an end. Then, referring again to FIG. 17, whether the double down game should be given or not is determined with reference to the double-down flag (S51). When it is determined that the double down game should be given (S51: YES), the processing proceeds to S3. When it is determined that the double down game should not be given (S51: NO), the processing proceeds to S5 in which coins are paid out and then the main processing comes to an end.

[0109] In S3, like in the above-described main processing shown in FIG. 4, the main CPU 32 determines whether the game mode should shift from the base game mode to the bonus game mode or not. When it is determined that the game mode should not shift to the bonus game mode (S3: NO), the processing proceeds to S53 which will be described later. When it is determined that the game mode should shift to the bonus game mode (S3: YES), a bonus game processing (S4) is executed in accordance with the above-described flowchart shown in FIG. 6.

[0110] After S4, the main CPU 32 determines whether a player has won in the bonus game or not (S52). Here, a condition for winning in the bonus game is that a symbol stopped in the central reel 3E is a Joker. When the multiple variable display game has been played in the bonus game, whether a player has won in the bonus game or not is determined for each reel group 30. When, as shown in FIG. 23 for example, the multiple variable display game using two reel groups 30A and 30B has been played with a result of Jokers stopped in the central reels 3E of both the reel groups 30A and 30B, it is determined that a player has won in the bonus game with respect to each of the reel groups 30A and 30B. A condition for winning in the bonus game is not limited to the above-mentioned one, but may be that a winning combination is made, that a particular symbol other than the Joker is stopped, or the like.

[0111] In the above example, the Joker corresponds to a "winning symbol" of the present invention. An image of each reel group 30 in which the symbols are stopped in the respective reels 3A to 3I at the end of the bonus game corresponds to a "stopped display image" of the present invention.

[0112] When it is determined that a player has won in the bonus game (S52: YES), the processing proceeds to S53. When it is determined that a player has not won in the bonus game (S52: NO), the processing proceeds to S5.

[0113] In S53, a double-down game processing is executed in accordance with a flowchart of FIG. 19. The double down game is a game by which whether payouts a player has acquired up to now can get doubled or down to zero is determined. While the double down game is played, a double-down game image 150 shown in FIG. 22 is displayed.

[0114] In the double-down game processing, first, the main CPU 32 executes a double-down lottery (S61). Determined by this double-down lottery are a symbol which will be stopped in a dealer area 153 and symbols which will be respectively stopped in player's windows 154a, 154b, and 154c of a player's area 154.

[0115] After S61, the main CPU 32 makes the main display 3 display the double-down game image 150 (S62). As shown in FIG. 22, the double-down game image 150 includes a title indicator 151, a level indication bar 152, the dealer area 153, the player's area 154, a stopped-display-image area 155, a command-input area 156, and a number-of-coins indicator 157.

[0116] The title indicator 151 shows an image including a character string of "DOUBLE DOWN GAME". The level indication bar 152 shows a character string of "High" at its right side, a character string of "Low" at its left side, and priority-ordered symbols arranged between these two character strings. As a location of a symbol gets closer to the right side, a level of the symbol increases. In the dealer area 153, one reel assigned to a dealer is scrollingly displayed and stopped. The player's area 154 includes player's windows 154a to 154c in which reels assigned to a player are scrollingly displayed and stopped.

[0117] In the stopped-display-image area 155, as will be detailed later, one reel group 30 which was displayed at the end of the base game or the bonus game is displayed. In the command-input area 156, a go button 156a and a stop button 156b are provided. The go button 156a is for continuing the double down game, and the stop button 156b is for stopping the double down game. The number-of-coins indicator 157 shows the number of coins a player has acquired up to now, the number of coins a player could get if he/she wins in the double down game, and the like.

[0118] After 62, whether a command has been inputted through any one of the buttons 156a and 156b of the command-input area 156 or not is determined (S63). When a command has been inputted (S63: YES), then whether the inputted command is a command to continue the double down game or not is determined (S64). In a case where, for example, a player touches the go button 156a with his/her finger or the like, it is determined that the inputted command is a command to continue the double down game (S64: YES), and the processing proceeds to S65. In a case where, for example, a player touches the stop button 156b with his/her finger or the like, it is determined that the inputted command is not a command to continue the double down game (S64: NO), and the double-down game processing comes to an end.

[0119] In S65, the main CPU 32 determines, based on the value set at the reel-group flag, whether two or more reel groups 30 have been displayed or not. When the reel-group flag is set to "02" or "04" (S65: YES), a stopped-display-images switching displaying processing is executed (S66), details of which will be described later. When it is determined that the reel-group flag is set to neither "02" nor "04" (S65: NO), the stopped-display-image area 155 displays the stopped display image of the single reel group 30 which was displayed at the end of the bonus game (S67).

[0120] After S67, whether any of the player's windows 154a to 154c has been selected or not is determined based on, for example, an input made through the touch panel 3a (S68). When it is determined that any of the player's windows 154a to 154c has been selected (S68: YES), the processing proceeds to S69. When it is determined that none of the player's windows 154a to 154c has been selected (S68: NO), the processing returns to S65.

[0121] In S69, whether a player wins over the dealer or not is determined. More specifically, it is determined that a

player wins, when a symbol stopped in the selected one of the player's windows **154a** to **154c** (among which the central player's window **154b** is selected in an example of **FIG. 22**) is higher in level than a symbol displayed in the dealer area **153**. When otherwise, it is determined that a player loses.

[0122] When it is determined that a player wins over the dealer (S69: YES), the payouts the player has acquired up to now is doubled (S70), and the double down game comes to an end. When it is determined that the player loses (S69: NO), the payouts are brought down to zero (S71), and the double down game comes to an end.

[0123] Here, a specific description will be given to the processing in S66. In S66, the main CPU **32** controls, in accordance with a flowchart shown in **FIG. 20**, switching-display of the stopped display images in the stopped-display-image area **155**.

[0124] At the beginning of the stopped-display-images switchingly displaying processing, a first stopped display image is displayed (S81). Then, whether a predetermined time period of display has elapsed or not is determined (S82). When the time period of display has elapsed (S82: YES), a second stopped display image is displayed instead of the first stopped display image (S83). Then, whether a predetermined time period of display has elapsed or not is determined again (S82). When the time period of display has elapsed (S82: YES), whether the reel-group flag is set to "04" or not is determined (S84). When the reel-group flag is set to "04" (S84: YES), the processing proceeds to S85. When the reel-group flag is not set to "04" (S84: NO), the stopped-display-images switchingly displaying processing comes to an end.

[0125] In S85, a third stopped display image is displayed instead of the second stopped display image. After S85, whether a predetermined time period of display has elapsed or not is determined again (S82). When the time period of display has elapsed (S82: YES), a fourth stopped display image is displayed instead of the third stopped display image (S86). Again, whether a predetermined time period of display has elapsed or not is determined (S82). When the time period of display has elapsed (S82: YES), the stopped-display-images switchingly displaying processing comes to an end.

[0126] In an example of **FIG. 23**, the reel-group flag is set to "02", and therefore the first stopped display image which means the stopped display image of the reel group **30A** and the second stopped display image which means the stopped display image of the reel group **30B** are switchingly displayed at regular intervals (S81 and S83). In **FIG. 22**, the stopped-display-image area **155** is displaying the stopped display image of the reel group **30A** shown in **FIG. 23**. Subsequently, the stopped-display-image area **155** will display the stopped display image of the reel group **30B**. Here, the stopped display images of the respective reel groups **30A** and **30B** clearly show the Joker which is stopped in the central reels **3E**, when switchingly displayed in the stopped-display-image area **155**.

[0127] When the reel-group flag is set to "04", stopped display images including additional two reel groups **30** are displayed one after another (S85 and S86 in addition).

[0128] In each of S81, S83, S85, and S86, the stopped display image of each reel group **30** is displayed in such a manner that symbols stopped in the respective reels **3A** to **3I** are visible to a player.

[0129] In the slot machine **1** which executes the main processing according to this modification, as thus far described above, in the double-down game processing, which follows after a player wins in the multiple variable display game in the bonus game, stopped display images of reel groups **30** which were displayed at the end of the bonus game are switchingly displayed. In case where stopped display images of reel groups **30** are simultaneously displayed, each one of the stopped display images of reel groups **30** is inevitably reduced in size and therefore a player may undesirably see difficulties in seeing the stopped display images. This problem is more remarkably found particularly when the reel-group flag is set to "04", that is, when the multiple variable display game using four reel groups **30** has been played. In the above-described modification, however, stopped display images of reel groups **30** are switchingly displayed one by one. This relieves the aforementioned problem to allow a player to easily see the stopped display images.

[0130] Even when a player misses or forgets a stopped display image which was displayed at the end of a game he/she has played just before the double down game, he/she can check such a stopped display images during the double down game by seeing the image displayed in the stopped-display-image area **155**.

[0131] The stopped display image of the reel group **30** is displayed in such a manner that symbols stopped in the respective reels **3A** to **3I** are visible to a player. This ensures that a player can, during the double down game, check which symbols were stopped at the end of the game he/she has played just before the double down game.

[0132] Since stopped display images of reel groups **30** are switchingly displayed at regular intervals, a player can check the stopped display images of reel groups **30** without any particular operation such as inputting.

[0133] It may also be possible that the stopped-display-images switchingly displaying processing is executed in accordance with a flowchart shown in **FIG. 21**.

[0134] First, stopped display images of all reel groups **30** are respectively reduced in size, and all of them are displayed in the stopped-display-image area **155** (S91). After S91, whether a player has selected a stopped display image or not is determined (S92). When a player has selected a stopped display image of a desired reel group **30** by means of the touch panel **3a** for example (S92: YES), the stopped display image thus selected is enlarged and displayed alone in the stopped-display-image area **155** (S93).

[0135] Thereafter, whether a predetermined time period of display has elapsed or not is determined (S82). When the time period of display has elapsed (S82: YES), again, the stopped display images of all reel groups **30** are respectively reduced in size and all of them are displayed in the stopped-display-image area **155** (S91).

[0136] In the stopped-display-images switchingly displaying processing shown in **FIG. 21**, all of the stopped display images of reel groups **30** are respectively reduced in size and

displayed simultaneously in the stopped-display-image area 155. Then, only a stopped display image selected by a player is enlarged and displayed alone in the stopped-display-image area 155. Thus, a stopped display image a player desires to see can be enlargedly displayed as necessary. Therefore, the stopped display images do not deteriorate in visibility.

[0137] The stopped display images may not necessarily be switched after every predetermined time period of display, but may be switched when a player touches the touch panel 3a.

[0138] In the stopped-display-images switchingly displaying processing, it may be possible that stopped display images of all the reel groups 30 are switchingly displayed as described above, but alternatively it may also be possible that, among all the stopped display images of the reel groups 30, only ones including the winning symbol, e.g., the Joker in the above-described example which indicates a winning in the bonus game, are switchingly displayed.

[0139] It may also be possible that three reel groups 30, or five or more reel groups 30 are displayed on the main display 4 during the multiple variable display game.

[0140] Although in the above-described embodiment a reel group 30 includes nine reels 3A to 3I, the number of reels included in a reel group 30 is not limited to nine but may be three or five, for example. Depending on the number of reels, e.g., when three reels are provided, the reels may be arranged in a single row.

[0141] 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 variable display unit that variably displays a plurality of symbols and a processor that controls a display made through the variable display unit,

wherein the processor:

controls the variable display unit so as to display one or more variable display groups each including a plurality of variable display portions in which the symbols are variably displayed; and

controls a progress of a multiple variable display game which is given through the variable display unit displaying the variable display groups in each of which the symbols are variably displayed.

2. The gaming machine according to claim 1, wherein the processor:

determines whether the variable display unit should display one variable display group or a plurality of variable display groups; and

controls the variable display unit so as to display a plurality of variable display groups when having determined that a plurality of variable display groups should be displayed.

3. The gaming machine according to claim 1, wherein the processor:

determines, when having controlled the variable display unit so as to display a plurality of variable display groups, for each of the variable display groups whether a winning is made or not and which payout number should be given; and

sums up payout numbers thus determined for the respective variable display groups.

4. The gaming machine according to claim 1, wherein the processor:

determines whether a base game should shift into a bonus game;

shifts the base game into the bonus game when having determined that the base game should shift into the bonus game; and

controls a progress of the multiple variable display game when having shifted the base game into the bonus game.

5. The gaming machine according to claim 1, wherein the processor:

determines whether a plurality of the variable display groups have been displayed or not; and

controls, when having determined that a plurality of variable display groups have been displayed, the display unit so as to switchingly display stopped display images, each including the symbols which have been stopped, of the respective variable display groups.

6. The gaming machine according to claim 5, wherein the processor controls the display unit so that the symbols included in each of the stopped display images are visible to a player.

7. The gaming machine according to claim 5, wherein the processor controls the display unit so as to switchingly display at regular intervals the stopped display images of the respective variable display groups.

8. The gaming machine according to claim 5, wherein the processor controls the display unit so as to display, among the stopped display images of the variable display groups, an image including a winning symbol which indicates a winning in the multiple variable display game.

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