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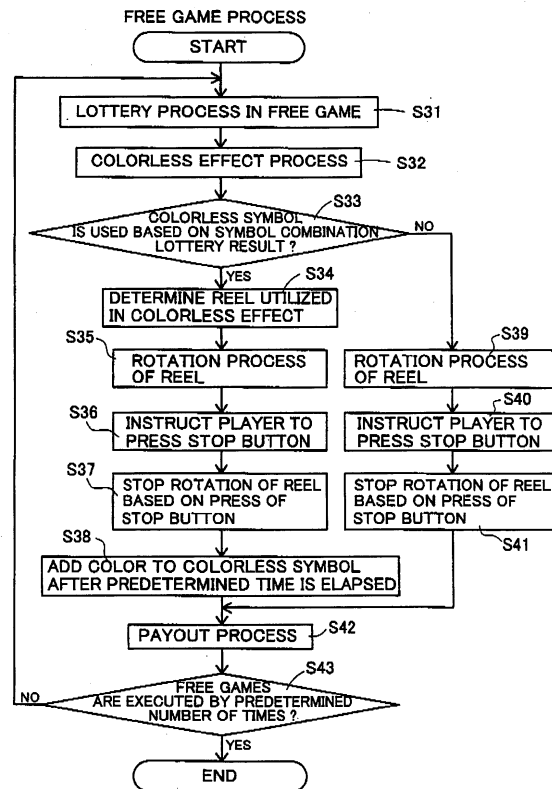
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(54) Gaming machine

(57) It is disclosed the slot machine 1, in which when it is determined that the "colorless effect" process utilizing the colorless 7 symbol 193 is done (S33) and for example, the winning combination of the red 7-red 7-red 7 is won, two red 7 symbols are automatically stopped and displayed along the pay line, thereafter the colorless 7 symbol is stopped and displayed along the pay line (S37). Further, after 0.5 seconds are elapsed, red color is added to the colorless 7 symbol 193 by displaying red color in the area superimposing with the colorless 7 symbol 193, thereby the colorless 7 symbol 193 is displayed as the red 7 symbol (S38). And in the free game conducted continuous to the base game based on that the trigger thereof is realized, when the specific winning combination (red 7-red 7-TRIPLE or red 7-red 7-DOUBLE) is won, the red 7 symbols are stopped on the pay line on the left reel 220 and the center reel 220 and the first divisional symbol "LE", which is obtained by dividing the word "TRIPLE" or "DOUBLE" into two, is stopped, thereafter the symbols are scrolled on the variable display portion 24 corresponding to the right reel 220 and the other second divisional symbol "TRIP" or "DOUB", which forms the word "TRIPLE" or "DOUBLE" in cooperation with the first divisional symbol "LE", is stopped on the pay line.

FIG.15



Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a gaming machine which gives predetermined benefit to a player when symbols on a plurality of variable display portions stop along a pay line. In particular, the present invention relates to a gaming machine such as a slot machine in which a display mode of the symbols stopped on the variable display portions can be changed.

[0002] And further the present invention relates to a gaming machine which is constructed so that one partial symbol obtained by dividing a complete symbol is stopped on the last variable display portion and thereafter the other partial symbol forming the complete symbol with the one partial symbol is stopped on the last variable display portion when the complete symbol is stopped on the last variable display portion.

2. Description of Related Art

[0003] Conventionally, it is proposed various slot machines in which a plurality of reels on an outer periphery of each of which various symbols are formed, are rotatably supported, and medals and the like are paid out when the symbol on each reel is stopped and displayed along a pay line with a predetermined combination.

[0004] For example, in Japanese Unexamined Publication No. 11-244453, it is disclosed a slot machine which is constructed so that after a game is started, not only combination lottery of symbol marks formed on each of three reels is conducted but also lottery of pay lines is done. Further, in the slot machine, the reels are automatically rotated and stopped after game condition shifts to a free game, thereafter coins are paid out according to a game result.

[0005] However, in the slot machine disclosed in the above reference, since the reels are automatically rotated and stopped if the free game is started, the player only sees moving reels and there is no chance to raise player's feelings until the symbols on the reels are stopped and displayed. Further, when the player loses a winning combination after the reels are automatically stopped, the player does not reach to have interest for the game result, thus the player's interest immediately shifts to the next game.

[0006] And in slot machines popularized in foreign countries, after a SPIN button is pressed, a stop symbol for each reel is determined and the reels are rotated. And after a predetermined time is elapsed, each reel is automatically stopped with the determined stop symbol. On the other hand, the player conducts the game while expecting that the symbol combination automatically stopped becomes what symbol combination. At this point, games conducted in the conventional gaming ma-

chines are apt to become passive for the player.

[0007] Especially, in a case that game condition shifts to a free game in which a predetermined number (concerning with the game) of free spins (operations in which the reels are automatically started to rotate without newly inserting medals and the reels are stopped after a predetermined time is elapsed, thereafter medals are paid out according to the combination of stopped symbols) can be done, it concludes to be continued the state that the player cannot participate in the game (the player can only see the combination of stopped symbols). Thus, various devices are done in the conventional gaming machines to make the player have interest for games.

[0008] For example, in the above Japanese unexamined Publication No. 11-244453, it is disclosed a slot machine which is constructed so that after a game is started, not only combination lottery of symbol marks formed on each of three reels is conducted but also lottery of pay lines is done. In this slot machine, position and number of the pay lines becomes changeable against the combination of the symbol marks which are determined by the lottery and stopped and displayed. Thus, interest of the player for games can be continued till end of the game.

[0009] However, in the slot machine disclosed in the above reference, when the symbol mart of each reel is stopped based on the stop position of each reel and the result of random lottery for symbol marks to be stopped in the windows, specific stop control of the reels is not done and the reels are constructed so as to automatically stop.

[0010] Even in this case, since the number of pay lines increases by the lottery, interest for games can be continued. However, it lacks in effect when three reels are stopped, therefore there still exists room for devices to highly maintain interest of the player for games.

SUMMARY OF THE INVENTION

[0011] The present invention has been done to accomplish the above problems and has an object to provide a gaming machine in which the symbols stopped on the variable display portions are at first displayed in an unrecognizable state and thereafter displayed in a recognizable state based on a predetermined trigger, thereby it can make the player have expectation for games till the predetermined trigger occurs.

[0012] According to one aspect of the present invention, it is provided a gaming machine including a variable display device in which a plurality of variable display portions conducting variable display of symbols are provided, the gaming machine giving a payout when the symbols variably displayed on each of the variable display portions are stopped along a pay line with a symbol combination corresponding to a predetermined winning combination,

the gaming machine further comprising:

a variable display controller for controlling the variable display of the symbols conducted on each of the variable display portions;
 a winning combination lottery device for conducting lottery of the winning combination;

wherein when the predetermined winning combination is won through the winning combination lottery device the variable display controller stops and displays predetermined symbols forming the symbol combination corresponding to the predetermined winning combination on all of the variable display portions except for one variable display portion among the plural variable display portions, and the variable display controller displays a predetermined symbol on the one variable display portion in a first mode in which the predetermined symbol combination becomes unrecognizable, and

wherein the variable display controller displays the predetermined symbol on the one variable display portion in a second mode in which the predetermined symbol combination becomes recognizable after a predetermined time is elapsed.

[0013] In the above gaming machine, when the predetermined winning combination is won through the winning combination lottery device, the variable display controller stops and displays predetermined symbols forming the symbol combination corresponding to the predetermined winning combination on all of the variable display portions except for one variable display portion among the plural variable display portions, and the variable display controller displays a predetermined symbol on the one variable display portion in a first mode in which the predetermined symbol combination becomes unrecognizable, and further the variable display controller displays the predetermined symbol on the one variable display portion in a second mode in which the predetermined symbol combination becomes recognizable after a predetermined time is elapsed. Therefore, since the winning combination cannot be recognized until the first mode is changed to the second mode, it can make the player have expectation for games during the first mode and the second mode.

[0014] Further, the present invention has an object to provide a gaming machine which is constructed so that one partial symbol obtained by dividing a complete symbol is stopped on the last variable display portion and thereafter the other partial symbol forming the complete symbol with the one partial symbol is stopped on the last variable display portion when the complete symbol is stopped on the last variable display portion among a plurality of variable display portions, thereby interest for games can be maintained during a period after the one partial symbol is stopped till the other partial symbol is stopped.

[0015] According to another aspect of the present invention, it is provided a gaming machine including a variable display device in which a plurality of variable display portions conducting variable display of symbols are

provided, the gaming machine giving a payout when the symbols variably displayed on each of the variable display portions are stopped along a pay line with a symbol combination corresponding to a predetermined winning combination,

the gaming machine further comprising:

a variable display controller for controlling the variable display of the symbols conducted on each of the variable display portions;
 a winning combination lottery device for conducting lottery of the winning combination;

wherein when the predetermined winning combination is won through the winning combination lottery device the variable display controller stops and displays predetermined symbols forming the symbol combination corresponding to the predetermined winning combination on all of the variable display portions except for one variable display portion among the plural variable display portions, and the variable display controller displays a first divisional symbol forming a predetermined symbol with a second divisional symbol on the one variable display portion, and

wherein the variable display controller displays the second divisional symbol on the one variable display portion while the first divisional symbol is displayed on the one variable display portion.

[0016] In the above gaming machine, when the predetermined winning combination is won through the winning combination lottery device, the variable display controller stops and displays predetermined symbols forming the symbol combination corresponding to the predetermined winning combination on all of the variable display portions except for one variable display portion among the plural variable display portions, and the variable display controller displays a first divisional symbol forming a predetermined symbol with a second divisional symbol on the one variable display portion, and further the variable display controller displays the second divisional symbol on the one variable display portion while the first divisional symbol is displayed on the one variable display portion. Therefore, when the winning combination is won, the winning combination cannot be recognized yet at the time that the first divisional symbol is stopped and the winning combination can be recognized for the first time when the second divisional symbol is stopped, since the predetermined symbol lastly stopped can be recognized by combining the first divisional symbol and the second divisional symbol. As a result, expectation of the player can be highly maintained until the second divisional symbol is stopped since the first divisional symbol is stopped.

[0017] And according to further another aspect of the present invention, it is provided a gaming machine comprising:

a plurality of reels which are rotatably supported in

the gaming machine, each reel having a symbol row with a plurality of symbols on an outer periphery thereof;

a liquid crystal display arranged at a more front position of the gaming machine than the reels, the liquid crystal display having variable display portions corresponding to the reels;

wherein the gaming machine gives a payout when the symbols variably displayed on each reel and each variable display portion of the liquid crystal display are stopped along a pay line with a symbol combination corresponding to a predetermined winning combination, the gaming machine further comprising:

a variable display controller for controlling variable display of the symbols conducted on each reel and each variable display portion of the liquid crystal display;

a winning combination lottery device for conducting lottery of the winning combination;

wherein when the predetermined winning combination is won through the winning combination lottery device the variable display controller stops and displays predetermined symbols forming the symbol combination corresponding to the predetermined winning combination, by cooperation of each reel and each variable display portion of the liquid crystal display.

[0018] In the above gaming machine, when the predetermined winning combination is won through the winning combination lottery device, the variable display controller stops and displays predetermined symbols forming the symbol combination corresponding to the predetermined winning combination, by cooperation of each reel and each variable display portion of the liquid crystal display. Therefore, since the predetermined symbols forming the symbol combination corresponding to the predetermined winning combination are stopped by cooperation of each reel and each variable display portion of the liquid crystal display, variegated effect can be conducted.

[0019] The above and further objects and novel features of the invention will more fully appear from the following detailed description when the same is read in connection with the accompanying drawings. It is to be expressly understood, however, that the drawings are for purpose of illustration only and not intended as a definition of the limits of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] The accompanying drawings, which are incorporated in and constitute a part of this specification illustrate embodiments of the invention and, together with the description, serve to explain the objects, advantages and principles of the invention.

[0021] In the drawings,

Fig. 1 is a perspective view of the slot machine, Fig. 2 is a longitudinal sectional view of the lower liquid crystal display and the reel,

Fig. 3 is an exploded perspective view of the lower liquid crystal display,

Fig. 4 is an explanatory view showing symbol rows which are variably displayed on variable display portions, the symbol rows being displayed on the lower liquid crystal display when the base game is conducted,

Fig. 5 is a block diagram showing a control system of the slot machine,

Fig. 6 is a block diagram schematically showing a liquid crystal drive circuit of the lower liquid crystal display,

Fig. 7 is an explanatory view showing a winning combination lottery table in the base game conducted by using five variable display portions, in the first embodiment,

Fig. 8 is an explanatory view showing the pay line patterns in the base game conducted by using five variable display portions,

Fig. 9 is a flowchart of a main program,

Fig. 10 is a flowchart of a program utilized in a base game process,

Fig. 11 is an explanatory view showing symbol rows displayed on the variable display portions, the symbol rows being displayed on the reels and seen through the lower liquid crystal display in a free game,

Fig. 12 an explanatory view showing a lottery table to determine whether "colorless effect" is done or not in a case that the free game is conducted by using three variable display portions,

Fig. 13 is an explanatory view showing a lottery table to determine the reel conducting the "colorless effect" in a case that the free game is conducted by using the three variable display portions,

Fig. 14 is an explanatory view showing a winning combination lottery table when the free game is conducted by using three variable display portions, Fig. 15 is a flowchart of a free game process,

Fig. 16 is an explanatory view showing a flow of the "colorless effect" and the pattern of the pay line in a case that the free game is conducted by using three variable display portions,

Fig. 17 is an explanatory view showing a flow of the "colorless effect" and the pattern of the pay line in a case that the free game is conducted by using three variable display portions,

Fig. 18 is an explanatory view showing a flow of the "colorless effect" and the pattern of the pay line in a case that the free game is conducted by using three variable display portions,

Fig. 19 is an explanatory view schematically showing the reels utilized in the free game and the symbol rows on the variable display portions, Fig. 19A is an explanatory view schematically showing the

symbol rows formed on three reels and Fig. 19B is an explanatory view schematically showing the symbols variably displayed on the variable display portion corresponding to the right reel, in the second embodiment,

Fig. 20 is an explanatory view showing a winning combination lottery table in the free game,

Fig. 21 is a flowchart of a main process program,

Fig. 22 is a flowchart of a base game process program,

Fig. 23 is a flowchart of a free game process program,

Fig. 24 is an explanatory view schematically showing a state of the symbols displayed on the reels and the variable display portions when the winning combination RED7-RED7-TRIPLE is won in the free game.

Fig. 25 is an explanatory view showing a lottery table to determine the symbol stopped and displayed on the pay line every variable display portion,

Fig. 26 is an explanatory view showing a lottery table to determine the symbol stopped and displayed on the pay line every variable display portion,

Fig. 27 is a code table in which each symbol and a code number is corresponded,

Fig. 28 is a lottery table in which a code number of the symbol in each symbol row and a random number are corresponded, and

Fig. 29 is a lottery table in which select probability of each symbol is unevenly allotted.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0022] Hereinafter, as the gaming machine according to the present invention, the first embodiment embodying the present invention in the slot machine will be described with reference to the drawings. First, an outline construction of the slot machine according to the first embodiment will be described with reference to Fig. 1. Fig. 1 is a perspective view of the slot machine.

[0023] In Fig. 1, the slot machine 1 has a cabinet 2 constructing a whole of the slot machine 1. At a front upper part of the cabinet 2 an upper liquid crystal display 3 is arranged, and at a front central part of the cabinet 2 a lower liquid crystal display 4 is arranged. Here, the upper liquid crystal display 3 is constructed from a liquid crystal display device which is generally used, and the lower liquid crystal display 4 is constructed from, so-called, a transparent liquid crystal display device. On the upper liquid crystal display 3, game operation method, kinds of winning combinations and payout therefor and information concerning with the game such as various effects thereof are displayed. And on the lower liquid crystal display 4, as shown in Fig. 1, five variable display portions 21, 22, 23, 24, and 25 are basically displayed and various symbols (mentioned later) are scrolled to the downward direction from the upward direction while

being variably displayed on each of the variable display portions 21 to 25. Here, the detailed construction of the lower liquid crystal display 4 will be described hereinafter.

[0024] A control panel 5, which is projected frontward, is formed below the lower liquid crystal display 4, and from the most left side on the control panel 5, a change button 6, a payout (cashout) button 7, a help button 8 are arranged. And a coin insertion slot 9 and a bill insertion portion 10 are arranged at the right side of help button 8. Further, from the left side, a 1-BET button 11, a SPIN/REPEAT BET button 12, a 3-BET button 13 and a 5-BET button 14 are positioned at the front side on the control panel 5.

[0025] Here, the change button 6 is pressed when exchanging the bill inserted in the bill insertion portion 10, and the exchanged coins are paid out through a coin payout chute 15 to a coin tray 16 which is formed at the lower part of the cabinet 2. To the change button 6, a change switch 62 (explained hereinafter) is attached, and a switch signal is output to a CPU 50 from the change switch 62 based on press of the change button 6.

[0026] The payout button 7 is usually pressed when games are terminated, and when the payout button 7 is pressed coins got in games are paid out through the coin payout chute 15 to the coin tray 16. Here, to the payout button 7, a payout (cashout) switch 63 (mentioned hereinafter) is attached and a switch signal is output to the CPU 50 from the payout switch 63 based on press of the payout button 7.

[0027] The help button 8 is pressed when the player cannot understand game operation method, and when the help button 8 is pressed, various help information is displayed on the upper liquid crystal display 3 or the lower liquid crystal display 4. To this help button 8, a help switch 64 (mentioned hereinafter) is attached and a switch signal is output to the CPU 50 from the help switch 64 based on press of the help button 8.

[0028] To the coin insertion slot 9, a coin sensor 65 (mentioned hereinafter) is positioned, and when the coin is inserted in the coin insertion slot 9 a coin detection signal is output to the CPU 50 through the coin sensor 65. And to the bill insertion portion 10 a bill sensor 66 (mentioned hereinafter) is positioned, and when the bill is inserted in the bill insertion portion 10 a bill detection signal is output to the CPU 50 through the bill sensor 66.

[0029] As for the 1-BET button 11, every the 1-BET button is pressed one credit is betted and to the 1-BET button 11, a 1-BET switch 59 is attached and when the 1-BET button 11 is pressed a switch signal is output to the CPU 50 from the 1-BET switch 59 based on press of the 1-BET button 11.

[0030] The SPIN/REPEAT BET button 12 is the button to start games from the present bet number or the previous bet number by press thereof, thereby variable display of the symbols is started on the variable display portions 21 to 25 of the lower liquid crystal display 4. To

the SPIN/REPEAT BET button 12, a spin switch 58 (mentioned later) is attached, and when the SPIN/REPEAT BET button 12 is pressed a switch signal is output to the CPU 50 from the spin switch 58 based on press of the SPIN/REPEAT BET button 12. Here, as the bet number which can be betted by press of the SPIN/REPEAT BET button 12, there may exist 1, 2, 3 and 5 bets.

[0031] The 3-BET button 13 is the button to start games from 3 bets on the basis of press thereof. To this 3-BET button 13, a 3-BET switch 60 (mentioned hereinafter) is attached and when the 3-BET button 13 is pressed a switch signal is output to the CPU 50 from the 3-BET switch 60. And the 5-BET button 14 is the button to start games from 5 bets on the basis of press thereof. To the 5-BET button 12, a 5-BET switch 61 is attached and when the 5-BET button is pressed a switch signal is output to the CPU 50 from the 5-BET switch 61 on the basis of press thereof.

[0032] Further, at the lower part of the cabinet 2, the coin payout chute 15 is formed and the coin tray 16 to receive coins paid out from the coin payout chute 15 is provided. In the coin payout chute 15, a coin detection part 73 constructed from a sensor and the like is positioned and the coin detection part 73 detects the number of coins paid out from the coin payout chute 15.

[0033] At the most front side of the control panel 5, stop buttons 26 to 30 are provided corresponding to each of the variable display portions 21 to 25, respectively. Here, as mentioned hereinafter, although these stop buttons are pressed when the symbols, which are scrolled on the variable display portions, are stopped and displayed thereon, the symbols cannot be stopped at timing of the press operation of the stop buttons 26 to 30. The switch signal output from the stop button switch 67 based on press of each of the stop buttons 26 to 30 is utilized to the end only as a trigger when the symbols scrolled on the variable display portions are stopped and displayed.

[0034] Further, at the side plane (the right side plane in Fig. 1) of the cabinet 2, a start lever 17 is arranged rotatably within a predetermined angle range. To the start lever 17, a start switch 57 (mentioned hereinafter) is attached and when the start lever 17 is rotated a switch signal occurring from the start switch 57 is output to the CPU 50.

[0035] Next, it will be described a detailed construction of the lower liquid crystal display 4 and reels rotatably arranged behind the lower liquid crystal display 4 in the cabinet 2, with reference to Figs. 2 and 3. Fig. 2 is a longitudinal sectional view of the lower liquid crystal display and the reels, and Fig. 3 is an exploded perspective view of the lower liquid crystal display 4.

[0036] In Figs. 2 and 3, the lower liquid crystal display 4 is arranged within a display window 21 of a device front panel 20 positioned at the front center part of the cabinet 2 in the slot machine 1, with a touch panel 300 arranged at the front side (the left side in Fig. 2) of the lower liquid crystal display 4. And at the rear side (the right side in

Fig. 2) of the lower liquid crystal display 4, three reels 220 (only one reel 220 is indicated in Fig. 2) are supported in a parallel state so that the reels 220 become independently rotatable.

[0037] Here, each reel 220 will be described. Among three reels 220, the left reel 220 when seeing the front plane of the slot machine 1 faces to a display portion 22 (see Fig. 1) formed in the lower liquid crystal display 4, the center reel 220 faces to a display portion 23 (see Fig. 1) similarly formed in the lower liquid crystal display 4 and the right reel 220 faces to a display portion 24 (see Fig. 1) similarly formed in the lower liquid crystal display 4. Here, no reel 220 faces to a variable display portion 21 and a variable display portion 25 (see Fig. 1).

[0038] Construction of each of the display portions 21 to 25 will be described hereinafter.

[0039] Further, on an outer periphery of each reel 220, various kinds of symbols shown in Fig. 11 (four kinds of symbols are indicated in Fig. 11) are formed, such symbols being used in a free game explained hereinafter. Concretely, as kinds of symbols formed on the outer periphery of the reel 220, a DOUBLE symbol 195, a RED 7 symbol 191, a BLUE 7 symbol 192 and a COLORLESS 7 symbol 193 are utilized. And these four kinds of symbols and blanks 194 (area that no symbol exists) are combined based on predetermined combinations and on an outer periphery of each reel 220, the combination of the symbols, in which the symbols and the blanks are totally combined (the total number of the symbols and the blanks is 15) is formed.

[0040] Here, various winning combinations are determined beforehand based on plural kinds of combinations of the symbols and when the symbol combination corresponding to the winning combination is stopped along a pay line L2 (see Figs. 16, 17 and 18), coins are paid out from the coin payout chute 15 according to the winning combination. These points are as same as that in the conventional slot machine, therefore explanation thereof will be omitted. And formation of the symbols on the outer periphery of the reel 220 is generally done as follows. First, symbols and blanks (total number of which is 16) are printed on a long seal having a width and a length corresponding to the width and the periphery length of the reel 220, respectively. And such seal is adhered on the peripheral plane of the reel 220. Of course, the symbols may be formed by different method other than the above method.

[0041] In the first embodiment, as for the free game mentioned hereinafter, the pay line L2 is determined to only the center line, and such pay line L2 is displayed on the lower liquid crystal display 4 when free game, in which at first each of the reels 220 is automatically rotated and continuously stopped based on press operation of the stop buttons 26 to 30, is conducted.

[0042] And the COLORLESS 7 symbol 193 can be colored in red color or blue color by the lower liquid crystal display 4, thereby there may be a case that the COLORLESS 7 symbol 193 is changed to the RED 7

symbol 191 or the BLUE 7 symbol 192.

[0043] Next, construction of the lower liquid crystal display 4 will be described with reference to Figs. 2 and 3A ~ 3I. In Figs. 2 and 3A ~ 3I, the lower liquid crystal display 4 is constructed by arranging from the front side of the slot machine 1; the transparent touch panel 300, the reel glass base 31, the bezel metal frame 32, the transparent liquid crystal panel 33, the liquid crystal holder 34, the diffusion sheet 35, the light guiding plate 36, the white reflector 37, the rear holder 38 and the antistatic sheet 39. In the diffusion sheet 35, three openings 35A, 35B, 35C, 35D, 35E are formed. Similarly, in the light guiding plate 36, the reflector 37 and the rear holder 38, three openings 36A, 36B, 36C, 36D, 36E, 37A, 37B, 37C, 37D, 37E, 38A, 38B, 38C, 38D, 38E are formed respectively, so as to coincide with the openings 35A, 35B, 35C, 35D, 35E. Here, the openings 35A ~ 38A construct the variable display portion 21 (see Fig. 1) by superimposing so as to coincide with each other. Similarly, the openings 35B ~ 38B construct the variable display portion 22 (see Fig. 1) by superimposing so as to coincide with each other and the openings 35C ~ 38C construct the variable display portion 23 (see Fig. 1) by superimposing so as to coincide with each other. And similarly, the openings 35D ~ 38D construct the variable display portion 24 (see Fig. 1) by superimposing so as to coincide with each other and the openings 35E ~ 38E construct the variable display portion 25 (see Fig. 1) by superimposing so as to coincide with each other.

[0044] Here, the openings 35A ~ 35E of the diffusion sheet 35 and the openings 36A ~ 36E of the light guiding plate 36 construct the light transmitting areas to retain visibility of the variable display portions 21 to 25.

[0045] In order to install the lower liquid crystal display 4 to the display window 21 of the device front panel 20, as shown in Fig. 2, brackets 40 are screwed to the rear side of the device front panel 20 by screws 410.

[0046] And at an upper and lower ends of the light guiding plate 36, a pair of cathode ray tubes 420 are arranged as light source of the liquid crystal panel 33. And at an upper and lower positions in the rear side of each of openings 38A ~ 38D in the holder 38, a pair of cold cathode ray tubes 430 may be arranged.

[0047] The liquid crystal panel 33 is a transparent electric display panel on which transparent electrodes such as ITO are formed, and the circumference in rear side of the display portion of the liquid crystal panel 33 is held by the liquid crystal holder 34. The light guiding plate 36 is made of the light transmitting resin panel, and in the light guiding plate 36 lens cut portions are formed, the lens cut portions guiding light emitted from the cathode ray tubes 420 positioned at side positions to the rear side of the liquid crystal panel 33. The light diffusion sheet 35 is made from a light transmitting resin sheet and diffuses light led thereto by the light guiding plate 36 and levels light irradiated to the liquid crystal panel 33. The liquid crystal holder 34 for holding the liquid crystal panel 33, the diffusion sheet 35 and the light

guiding plate 36 are assembled into one-piece construction and circumference thereof is inserted in the bezel metal frame 32. Thereby, the front side of the display portion in the liquid crystal panel 33 is retained by the bezel metal frame 32.

[0048] Circumferences of the liquid crystal holder 34, the light diffusion sheet 35 and the light guiding plate 36, which are inserted in the bezel metal frame 32 and assembled into one-piece construction, is further inserted in the reel glass base 31 and retained by the reel glass base 31 in a state that the front display plane of the liquid crystal panel 33 is opened. The transparent touch panel 300 is pressed to the front face of the reel glass base 31 and superimposed on the front face of display portion of the liquid crystal panel 33 based on that the reel glass base 31 is attached to the device front panel 20 by screws 410.

[0049] The rear holder 38 is made from a white resin plate and retains to the reel glass base 31 the bezel metal frame 32 supported to the reel glass base 31, the liquid crystal holder 34 holding the liquid crystal panel 33, the light diffusion sheet 35 and the light guiding plate 36 from the rear sides thereof. The rear holder 38 also functions as a reflecting plate for reflecting light emitted from the cathode ray tubes 420 to the light guiding plate 36 toward the liquid crystal panel 33. The antistatic sheet 39 is made transparent and adhered to the rear plane of the rear holder 38 by double-sided adhesive tape, thereby the antistatic sheet 39 covers the rear plane of each of the openings 38A - 38E formed in the rear holder 38.

[0050] Next, according to Fig. 4, it will be described symbol rows which are variably displayed on the variable display portions 21 to 25 while scrolling thereon, the symbol rows being displayed on the lower liquid crystal display 4 in the base game. In Fig. 4, the symbol row 41 is the symbol row which is variably displayed on the variable display portion 21, the symbol row 42 is the symbol row which is variably displayed on the variable display portion 22, the symbol row 43 is the symbol row which is variably displayed on the variable display portion 23. the symbol row 44 is the symbol row which is variably displayed on the variable display portion 24 and the symbol row 45 is the symbol row which is variably displayed on the variable display portion 25.

[0051] Here, the symbol rows 41, 42, 44 and 45 commonly have the same arrangement of the symbols and such arrangement of the symbols is constructed from eleven symbols in which the triple BAR 91, the cherry 92, the double BAR 93, the symbol seven 94, the single BAR 95 and the blank (no symbol exists) 96 are voluntarily combined.

[0052] And although the symbol row 43 is as same as the symbol row 41, 42, 44, 45 at the point that the triple BAR 91, the cherry 92, the double BAR 93, the symbol seven 94 the single Bar 95 and the blank 96 are combined, one joker 97 as the trigger symbol is further arranged in the symbol row 43. This joker 97, as men-

tioned hereinafter, functions as a symbol to shift to the free game in the base game, and when the joker 97 is stopped and displayed on the pay line (mentioned later) in the variable display portion 23, the game condition shifts to the free game from the base game.

[0053] Here, when the symbol rows 41 to 45, which are scrolled on the variable display portions 21 to 25 respectively, are stopped and displayed thereon, three symbols are stopped and displayed on each variable display portion.

[0054] And various winning combinations are set beforehand based on a plurality of symbol combinations and when the symbol combination corresponding to the winning combination is stopped on the pay line, coins are paid out from the coin payout chute 15 according to the winning combination. The above mentioned points are as same as those in the conventional slot machine, therefore detailed description thereof will be omitted.

[0055] Next, it will be described a construction of the control system in the slot machine 1 with reference to Fig. 5. Fig. 5 is a block diagram schematically showing the control system in the slot machine 1.

[0056] In Fig. 5, the control system of the slot machine 1 is basically constructed from the CPU 50, and a ROM 51 and a RAM 52 are connected to the CPU 50. The ROM 51 stores main process program mentioned later, various effect programs for executing various effects on the upper liquid crystal display 3 and the lower liquid crystal display 4 according to progress in games, a lottery table utilized in lottery of the winning combination in the base game, a lottery table utilized in lottery of the winning combination corresponding to the free game, a lottery table to determined whether the "colorless effect" is done or not, a lottery table to determine the reel 220 in which the colorless 7 symbol 193 is utilized, pay line patterns utilized in the base game or the free game, various programs necessary for controlling the slot machine 1 and various data tables and the like. And the RAM 52 is a memory for temporarily storing various data calculated by the CPU 50.

[0057] And to the CPU 50, a clock pulse generator 53 for generating standard clock pulses and a frequency divider 54 are connected, and a random number generator 55 and a sampling circuit 56 are also connected. Random number sampled by the random number generator 56 is utilized in various lotteries of the winning combinations, the effects and the like. Further, to the CPU 50, the start switch 57 attached to the start lever 17, the spin switch 58 attached to the SPIN/REPEAT BET button 12, the 1-BET switch 59 attached to the 1-BET button 11, the 3-BET switch 60 attached to the 3-BET button 13, the 5-BET switch 61 attached to the 5-BET button 14, the change switch 62 attached to the change button 6, the payout switch 63 attached to the payout button 7 and the help switch 64 attached to the help button 8 are connected respectively. The CPU 50 controls the slot machine 1 to execute various operations corresponding to each button, based on the switch

signal output from each switch when such buttons are pressed.

[0058] To the CPU 50, three stepping motors 68 for rotating each of the reels 220 through a motor drive circuit 167 are connected, and also a reel position detection circuit 69 is connected. When a motor drive signal is output to the motor drive circuit 167, each stepping motor 68 is driven to rotate by the motor drive circuit 167, thereby each reel 220 is rotated.

[0059] At that time, after each reel 22 is started to rotate, the number of drive pulses provided to each stepping motor 68 is calculated and the calculated value is written in the predetermined area of the RAM 52. And the reset pulse is output every one rotation of the reel 220 and such reset pulse is input to the CPU 50 through the reel position detection circuit 69. When the reset pulse is input to the CPU 50, the calculated value written in the RAM 52 is cleared in "0", and the CPU 50 recognizes the symbol rotational position in the reel 220, based on the calculated value corresponding to the rotational position of the reel 220 within one rotation and the symbol table in which the rotational position of the reel 22 stored in the ROM 51 and the symbols formed on outer peripheral plane of the reel 22 are corresponded with each other.

[0060] Further, to the CPU 50, the coin sensor 65 positioned in the coin insertion slot 9 and the bill sensor 66 positioned in the bill insertion portion 10 are connected respectively. The coin sensor 65 detects coins inserted from the coin insertion slot 9 and the CPU 50 calculates the number of inserted coins based on the coin detection signal output from the coin sensor 65. The bill sensor 66 detects the kind and sum of bill and the CPU 50 calculates the number of coins equivalent to sum of bill, based on the bill detection signal output from the bill sensor 66. And to the CPU 50, the stop button switches 67 attached to the stop buttons 26 to 30 are connected. When press operation of the stop buttons 26 to 30 is conducted, switch signals are output from the stop button switches 67 and the CPU 50 stops and displays the symbols which are scrolled on the variable display portions 21 to 25, based on switch signals.

[0061] To the CPU 50, a hopper 71 is connected through a hopper drive circuit 70. When a drive signal is output to the hopper circuit 70 from the CPU 50, the hopper 71 pays out predetermined number of coins from the coin payout chute 15

[0062] And to the CPU 50, a coin detection part 73 is connected through a payout completion signal circuit 72. The coin detection part 73 is arranged in the coin payout chute 15 and when the coin detection part 73 detects that a predetermined number of coins are paid out from the coin payout chute 15, the payout completion signal is output to the payout completion signal circuit 72 from the coin detection part 73. Based on this, the payout completion signal circuit 72 outputs the payout completion signal to the CPU 50. Further, to the CPU 50, the upper liquid crystal display 3 is connected

through a liquid crystal drive circuit 74 and the lower liquid crystal display 4 is connected through a liquid crystal drive circuit 75.

[0063] At this point of view, as shown in Fig. 6, the liquid crystal drive circuit 74 is constructed from a program ROM 81, an image ROM 82, an image control CPU 83, a work RAM 84, a VDP (Video Display Processor) 85 and a video RAM 86. And in the program ROM 81, an image control program concerning with display on the lower liquid crystal display 4 and various selection tables are stored. Further, in the image ROM 82, for example, it is stored dot data for forming images such as the symbol rows 41 - 45 in Fig. 4 displayed on the lower liquid crystal display 4 (or variable display portions 21 to 25). And the image control CPU 83 determines images displayed on the lower liquid crystal display 4 among the dot data stored in the image ROM 82 beforehand, according to the image control program stored in the program ROM 81 based on parameters set by the CPU 50. And the work RAM 84 functions as the temporary memory when the above image control program is executed by the image control CPU 83. Further, the VDP 85 forms images corresponding to display contents determined by the image control CPU 83 and outputs the images to the lower liquid crystal display 4. Thereby, for example, the symbol rows 41 ~ 45 of Fig. 4 and the symbol rows 41 ~ 45 of Figs. 11 and 13 are scrolled and displayed on the lower liquid crystal display 4 (or variable display portions 21 to 25). Here, the video RAM 86 functions as the temporary memory when images are formed by the VDP 85.

[0064] And to the CPU 50, LEDs 78 are connected through a LED drive circuit 77. A plurality of LEDs 78 are arranged on the front plane of the slot machine 1 and the LEDs 78 are controlled so as to turn on based on the drive signals from the CPU 50. Further, a speaker 80 and a sound output circuit 79 are connected to the CPU 50 and the speaker 80 produces various effective sounds when various effects are conducted based on the output signal from the sound output circuit 79.

[0065] Here, in a case that the base games are conducted in the slot machine 1 by utilizing five variable display portions 21 to 25, the lottery table utilized when the lottery of the winning combination is done and the pay line pattern at that time will be described with reference to Figs. 7 and 8. Fig. 7 is an explanatory view showing the lottery table of the winning combination utilized in the base games by using five variable display portions and Fig. 8 is an explanatory view showing the pay line pattern utilized in the base game by using five variable display portions.

[0066] In Fig. 7, a range of random number values utilized in the lottery table of the winning combination lie within 0 ~ 16383. Here, in a case that the random number value sampled by the random number sampling circuit 56 lies in a range of 0 ~ 3, the free game is triggered. In this case, the joker 97 is stopped and displayed on the pay line in the variable display portion 23 and the

game condition can be shifted to the free game. Here, the free game is a game conducted after the base game is done and is generally beneficial for the player in many cases. For example, when the game condition shifts to the free game, games are continuously done during 10 games, 20 games or 30 games, corresponding rank of the free game. At that time, in the free game, winning probability for winning various winning combinations is generally set high, therefore the player can get a lot of coins in many cases. These points will be described hereinafter.

[0067] And in a case that the random number value sampled by the random number sampling circuit 56 lies in a range of 4 ~ 15, the winning combination of the seven (7) is won. In this case, the symbol seven 94 is stopped and displayed on the pay line in each of the variable display portions 21 to 25. Similarly, if the random number value sampled lies in a range of 16 ~ 31, the winning combination of the triple BAR is won. In this case, the triple BAR 91 is stopped and displayed on the pay line in each of the variable display portions 21 to 25. And similarly, if the random number value sampled lies in a range of 32 ~ 63, the winning combination of the double BAR is won. In this case, the double BAR 93 is stopped and displayed on the pay line in each of the variable display portions 21 to 25. Similarly, if the random number value lies in a range of 64 ~ 255, the winning combination of the single BAR is won. In this case, the single BAR 95 is stopped and displayed on the pay line in each of the variable display portions 21 to 25. And if the random number value sampled lies in a range of 256 ~ 511, the winning combination of the cherry is won. In this case, the cherry 92 is stopped and displayed on the play line in each of the variable display portions 21 to 25.

[0068] Here, in a case that the random number value lies in a range of 512 ~ 16383, it leads to loss of winning combination (no winning combination can be won). In this case, symbol combination other than the winning combination is stopped and displayed on the pay line in each of variable display portions 21 to 25.

[0069] Next, the pattern of the pay line in a case that the base game is done by using five variable display portions 21 to 25 will be described with reference to Fig. 7.

In a case that the base game is done by using five variable display portions 21 to 25, the top line L1, the center line L2, the bottom line L3, the cross down-cross up line L4 obtained by combining the cross down line and the cross up line and the cross up-cross down line L5 obtained by combining the cross up line and cross down, are made active.

[0070] Here, in the example shown in Fig. 8, it is shown the double Bars which are stopped along the cross down-cross up line L4 and the winning combination of the double BAR is realized.

[0071] Next, when the free game is conducted in the slot machine 1, the lottery table utilized for conducting the lottery of the winning combinations and the pattern

of the pay line at that time will be described with reference to Figs. 14, 16 ~ 18. Here, the free game is conducted by using three variable display portions 22 to 24 through which the symbols on three reels 220 can be seen Fig. 14 is an explanatory view showing the winning combination lottery table used when the free game is done through the three variable display portions, and Figs. 16 ~ 18 explanatory views showing the pattern of the pay line used when the free game is done through three variable display portions.

[0072] In Fig. 14, the range of the random number values lies within 0 ~ 1127, and if the random number value sampled by the random number sampling circuit 56 lies in a range of 0 ~ 5, the winning combination of the red 7-red 7-DO is won. In this case, the red 7 symbol 191, the red 7 symbol 191 and the double symbol 195 are stopped on the pay line in this order. Similarly, if the random number value sampled by the random number sampling circuit 56 lies in a range of 6 ~ 10, the winning combination of the blue 7-blue 7-do is won. In this case, the blue 7 symbol 192, the blue 7 symbol 192 and the double symbol 195 are stopped on the pay line in this order.

[0073] And if the random number value lies in a ranged of 11 ~ 26, the winning combination of the red 7-red 7-red 7 is won. In this case, the red 7 symbol 191, the red 7 symbol 191 and the red 7 symbol 191 are stopped and displayed on the pay line (see Fig. 17). At that time, as mentioned later, there may be a case as follows. That is to say, any one of the red 7 symbols 191 is once stopped and displayed by the colorless 7 symbol 193 (see Fig. 16) and after, for example, 0.5 seconds are elapsed, red color is displayed on the lower liquid crystal display 4, thereby it is conducted the effect to give an impression as if the colorless 7 symbol 193 is changed to the red 7 symbol 191 as shown in Fig. 17 (called the "colorless effect" hereinafter). This point will be described hereinafter.

[0074] And if the random number value sampled lies in a range of 27 ~ 33, the winning combination of the blue 7-blue 7-blue 7 is won. In this case, the blue 7 symbol 192, the blue 7 symbol 192 and the blue 7 symbol 192 are stopped and displayed on the pay line. At that time, as mentioned later, there may be a case as follows. That is to say, any one of the blue 7 symbols 192 is once stopped and displayed by the colorless 7 symbol 193 (see Fig. 16) and after, for example, 0.5 seconds are elapsed, blue color is displayed on the lower liquid crystal display 4, thereby it is conducted the effect to give an impression as if the colorless 7 symbol 193 is changed to the blue 7 symbol 192 as shown in Fig. 18 (this effect is as same as the effect mentioned in the above). This point will be described hereinafter.

[0075] Here, in a case that the random number value lies in a range of 33 ~ 127, it leads to loss of winning combination. In this case, symbol combination other than the winning combination is stopped and displayed on the pay line in each of the variable display portions

22 to 24. And also in this case, for example, through the variable display portions 22 to 24, the red 7 symbol 191, the red 7 symbol 191 and the blank (area that no symbol exists) 194 are stopped and displayed on the pay line, or the blue 7 symbol 192, the blue 7 symbol 192 and the blank 194 are stopped and displayed on the pay line, or the red 7 symbol 191, the red 7 symbol 191 and the blue 7 symbol 192 are stopped and displayed on the pay line, or the blue 7 symbol 192, the blue 7 symbol 192 and the red 7 symbol 191 are stopped and displayed on the pay line.

[0076] Next, the pattern of the pay line in the free game conducted in the slot machine 1 will be described with reference to Figs. 16 ~ 18. If the free game is conducted in the slot machine 1, only the center line L2 is made active as the pay line, different from the above case of the base game. Here, in the example shown in Fig. 17, it is indicated the example that the red 7 symbols 191 are stopped and displayed on the center line L2, thereby the winning combination of the red 7-red 7-red 7 is realized.

[0077] Next, the lottery table concerning with the "colorless effect" utilized when the free game is done in the slot machine 1 will be described with reference to Figs. 12 and 13. Fig. 12 is an explanatory view showing the lottery table to determine whether the "colorless effect" is done or not when the free game is conducted by using three variable display portions, and Fig. 13 is an explanatory view showing the lottery table to determine the reel in which the "colorless effect" is done when the free game is conducted by using three variable display portions.

[0078] In Fig. 12, the range of the random number values utilized in the lottery table to determine whether the "colorless effect" is done or not. lies within 0 ~ 127. And in a case that the winning combination of the red 7-red 7-red 7 is won, if the random number value sampled by the random number sampling circuit 56 lies in a range of 0 ~ 102, the "colorless" effect is done, and if the random number value sampled by the random number sampling circuit 56 lies in a range of 103 ~ 127, the "colorless" effect is not done. And similarly, in a case that the winning combination of the blue 7-the blue 7-the blue 7 is won, if the random number value sampled by the random number sampling circuit 56 lies in a range of 0 ~ 102, the "colorless effect" is done, and if the random number value sampled by the random number sampling circuit 56 lies in a range of 103 ~ 127, the "colorless effect" is not done.

[0079] And according to the lottery table shown in Fig. 12. there may be a chance to conduct the "colorless effect" even if loss of the winning combination occurs. Here, in a case that the red 7 symbol 191, the red 7 symbol 191 and the blue 7 symbol 192 are stopped and displayed on the pay line, the random number value sampled by the random number sampling circuit 56 lies in a range of 0 ~ 15, the "colorless effect" is done, and if the random number value sampled by the random number

sampling circuit 56 lies in a range of 16 ~ 127, the "colorless effect" is not done. Similarly, in a case that the blue 7 symbol 192, the blue 7 symbol 192 and the red 7 symbol 191 are stopped and displayed on the pay line if the random number value sampled by the random number sampling circuit 56 lies in a range of 0 ~ 35, the "colorless effect" is done, and if the random number value sampled by the random number sampling circuit 56 lies in a range of 36 ~ 127, the "colorless effect" is not done.

[0080] Here, according to the lottery table shown in Fig. 12, in a case that the red 7 symbol 191, the red 7 symbol 191 and the blank 194 are stopped and displayed on the pay line, or in a case that the blue 7 symbol 192, the blue 7 symbol 192 and the blank 194 are stopped and displayed on the pay line, the "colorless effect" is not done.

[0081] Next, in Fig. 13, the range of the random number values utilized in the lottery table to determine the reel in which the "colorless effect" is done, lies within 0 ~ 127. And if the random number value sampled by the random number sampling circuit 56 lies in a range of 0 ~ 21, the "colorless effect" is done by utilizing the colorless 7 symbol 193 formed on the left reel 220, and if the random number value sampled by the random number sampling circuit 56 lies in a range of 22 ~ 42, the "colorless effect" is done by utilizing the colorless 7 symbol 193 formed on the center reel 220, and further if the random number value sampled by the random number sampling circuit 56 lies in a range of 43 ~ 63, the "colorless effect" is done by utilizing the colorless 7 symbol 193 formed on the right reel 220.

[0082] Here, as for the reel 220 on which the colorless 7 symbol 193 utilized in the "colorless effect" is formed, in order to conduct effective effect against the player, although it is desirable that rotation of the above reel 220 is lastly stopped, rotation of the above reel 220 may be first or second stopped if it is done the effect as if the colorless 7 symbol 193 is changed to the red 7 symbol or the blue 7 symbol, after rotation of all reels 220 is stopped.

[0083] In addition to the above, the main process program executed in the slot machine 1 will be described with reference to Fig. 9. Fig. 8 is a flowchart of the main process program. In Fig. 9, at first, in step (abbreviated as "S" hereinafter) 11, start acceptance process is done. This start acceptance process is the process to receive the switch signal output from the start switch 57, the spin switch 58, the 1-BET switch 59, the 3-BET switch 60 or the 5-BET switch 61, based on operation of the start lever 17, the SPIN/REPEAT BET button 12, the 1-BET button 11, the 3-BET button or the 5-BET button 14. At the time that the switch signal output from each switch is received, the game is started.

[0084] And in S12, the lottery process is done based on the switch signal output from the start switch 57, the spin switch 58, the 1-BET switch 59, the 3-BET switch 60 or the 5-BET switch 61. Concretely, the lottery of the winning combination in the base game is conducted by

using the lottery table shown in Fig. 7.

[0085] Here, if the free game is triggered, the number of times that the free games are continuously executed is determined, and such number of times is selected, for example, among 10 games, 20 games and 30 games by the lottery.

[0086] In S13, the base game process shown in Fig. 10 is done. Thereafter, procedure shifts to S14 and it is determined whether the trigger of the free game is realized or not. Concretely speaking, in the lottery process in S12, if the random number value sampled by the random number sampling circuit 56 lies in a range of 0 ~ 3, the free game is triggered (S14: YES), therefore procedure shifts to S15 and the free game process in Fig. 14 is done, thereafter the main process program is finished. On the other hand, if the random number value sampled by the random number sampling circuit 56 in the lottery process in S12 lies in a range of 3 ~ 16383, the free game is not triggered (S14: NO), therefore the main process program is finished.

[0087] Next, the base game process done in the slot machine 1 will be described with reference to Fig. 10. Fig. 10 is a flowchart of the base game process program. After the lottery process in S12 of the main process program shown in Fig. 9 is done, the base game is conducted. First, procedure shifts to S21 in Fig. 10 and the symbols are scrolled on each of the variable display portions 21 to 25 based on the switch signal output from the start switch 57, the spin switch 58, the 1-BET switch 59, the 3-BET switch 60 or the 5-BET switch 61, which is received in S11 in Fig. 9.

[0088] And in S22, in a case that the stop buttons 26 to 30 corresponding to the variable display portions 21 to 25 on which the symbols are scrolled are pressed by the player, scroll of the symbols on the variable display portions 21 to 25 is stopped by utilizing the switch signals output from the stop buttons 26 to 30 as the trigger.

[0089] Here, in the first embodiment, each of the stop buttons 26 to 30 has no relation with so-called "observation push" which is done for purpose to allow technical intervention by the player. And the switch signal output from each of the stop buttons 26 to 30 is used to the end only as the trigger when the symbols scrolled on the variable display portions 21 to 25 are stopped and displayed thereon. Therefore, the symbols on each of the variable display portions 21 to 25 are stopped and displayed thereon based on only the lottery result obtained in S12 of Fig. 9.

[0090] In S23, coins corresponding to the predetermined payout are paid out according to the symbol combination in the winning combination which is stopped and displayed over the variable display portions 21 to 25 in S22. After S23 is executed, the main process program is finished.

[0091] Next, the free game process program done in the slot machine 1 will be described with reference to Fig. 15. Fig. 15 is a flowchart of the free game process program. If it is determined that the free game is trig-

gered in S14 in the main process program shown in Fig. 9 (S14: YES), procedure shifts to S15 of Fig. 9 and the free game is conducted. At first, procedure shifts to S31 in Fig. 15 and the lottery during the free game is done. Concretely, at the timing that procedure shifts to S31, the random number value is obtained and the winning combination lottery in the free game is conducted based on the obtained random number value by utilizing lottery table shown in Fig. 14.

[0092] Next, the "colorless effect" process is done in S32. Concretely, it is determined whether the "colorless effect" process is done or not by using the lottery table in Fig. 12. Therefore, this determination is done based on the symbol combination resulted in the lottery in S31, and further, it is determined whether or not the "colorless effect" process by using the colorless 7 symbol 193 is conducted, in only the case that the resulted symbol combination is any one of the red 7-red 7-red 7, the red 7-red 7-blue 7, the blue 7-blue 7-blue 7 and the blue 7-blue 7-red 7. And in S33, according to the result determined on the basis of the resulted symbol combination, it is determined whether the "colorless effect" process by using the colorless 7 symbol 193 is done or not. Here, if it is determined that the "colorless effect" process by using the colorless 7 symbol 193 is done (S33: YES), procedure shifts to S 34.

[0093] In S34, it is determined that, as for the colorless 7 symbol 193 utilized in the "colorless effect" process, the colorless 7 symbol 193 of which reel 220 is to be used. Concretely, the random number value is obtained at the timing that procedure shifts to S34 and, based on the obtained random number value, the reel 220 used in the "colorless effect" process is determined according to the lottery table in Fig. 13. Next, in S35, three reels 220 are automatically started to rotate at the same time, thereafter in S36, in order to stop of rotation of the reels 220, it is called player's attention so that the player presses any one of the stop buttons 26 to 30 by words (for example, "switch on") displayed on the lower liquid crystal display 4 or blinking of the stop buttons 26 to 30.

[0094] Further, in S37, rotation of the reels 220 other than the reel 220 determined in S34 is automatically stopped and if any one of the stop buttons 26 to 30 is pressed by the player, rotation of the reel 220 determined in S34 is stopped by utilizing the switch signal output from any one of the stop buttons 26 to 30 as the trigger. At that time, rotation of the reel 220 determined in S34 is stopped after the other reels 220 are automatically stopped. Concretely, for example, in a case that the winning combination of the red 7-red 7-red 7 is won, if the "colorless effect" process is done by using the colorless 7 symbol 193 on the center reel 220, the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) is stopped and displayed along the pay line L2 after the red 7 symbol 191 on the right reel 220 (variable display portion 24) and the red 7 symbol 191 on the left reel 220 (variable display portion 22) are automatically stopped and displayed along the pay line L2,

as shown in Fig. 16. At that time, although the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) is lastly stopped and displayed, stop order of the red 7 symbol 191 on the right reel 220 (variable display portion 24) and the red 7 symbol 191 on the left reel 220 (variable display portion 22) can be voluntarily determined. And if the symbol combination red 7-red 7-blue 7 which corresponds to loss of the winning combination is stopped, the method of the "colorless effect" process by using the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) is as same as the above method, and as shown in Fig. 16, after the red 7 symbol 191 on the right reel 220 (variable display portion 24) and the red 7 symbol 191 on the left reel 220 (variable display portion 22) are automatically stopped and displayed along the pay line L2, the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) is stopped and displayed along the pay line L2. At that time, although the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) is lastly stopped and displayed, stop order of the red 7 symbol 191 on the right reel 220 (variable display portion 24) and the red 7 symbol 191 on the left reel 220 (variable display portion 22) can be voluntarily determined.

[0095] Here, in the first embodiment, each of the stop buttons 26 to 30 has no relation with so-called "observation push" which is done for purpose to allow technical intervention by the player. And the switch signal output from each of the stop buttons 26 to 30 is used to the end only as the trigger when the symbols on the reels 220 (variable display portions 22 to 24) scrolled are stopped and displayed. Therefore, the symbols on each of the reels 220 (variable display portions 22 to 24) are stopped and displayed thereon based on only the lottery result obtained in S31.

[0096] And in S38, color is added to the colorless 7 symbol 193 utilized in the "colorless effect" process after the colorless 7 symbol 193 is stopped and a predetermined time is elapsed. Concretely speaking, for example, as shown in Fig. 16, in a case that the red 7 symbol 191 on the right reel 220 (variable display portion 24) and the red 7 symbol 191 on the left reel 220 (variable display portion 22) are stopped and displayed along the pay line L2 and further the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) is stopped and displayed along the pay line L2, if the winning combination of the red 7-red 7-red 7 is won, red color is displayed, as shown in Fig. 17, on the lower liquid crystal display 4 against the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) after 0.5 seconds are elapsed since the colorless 7 symbol 193 on the center reel 220 is stopped and displayed along the pay line L2. And coins corresponding to the winning combination of the red 7-red 7-red 7 are paid out. On the other hand, if the symbol combination is the red 7-red 7-blue 7 which corresponds to loss of the winning combination, after 0.5 seconds are elapsed since the colorless 7 symbol 193 on the center reel 220 (var-

iable display portion 23) is stopped and displayed along the pay line L2 as shown in Fig. 18, blue color is displayed on the lower liquid crystal display 4 against the colorless 7 symbol 193 on the center reel 220 (variable display portion 23).

[0097] Here, in the free game, since the free game is done while the symbols formed on three reels 220 (variable display portions 22 to 24) are seen through each of the variable display portions 22 to 24 on the lower liquid crystal display 4, addition of red color or blue color against the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) by the lower liquid crystal display 4 is done by displaying red color or blue color on the lower liquid crystal display 4 in the area superimposed with the colorless 7 symbol 193 on the center reel 220.

[0098] On the other hand, in S33, if it is determined that the "colorless effect" process by using the colorless 7 symbol 193 is not conducted (S33: NO), procedure shifts to S39 and rotation of all reels 220 is automatically started. Thereafter, in S40, in order to stop of rotation of the reels 220, it is called player's attention so that the player presses any one of the stop buttons 26 to 30 by words (for example, "switch on") displayed on the lower liquid crystal display 4 or blinking of the stop buttons 26 to 30.

[0099] And in S41, rotation of two reels 220 is automatically stopped and if any one of the stop buttons 26 to 30 is pressed by the player, rotation of the remaining reel 220 is stopped by utilizing the switch signal output from any one of the stop buttons 26 to 30 as the trigger. At that time, rotation of the remaining reel 220 is stopped after the other two reels 220 are automatically stopped.

[0100] Here, in the first embodiment, each of the stop buttons 26 to 30 has no relation with so-called "observation push" which is done for purpose to allow technical intervention by the player. And the switch signal output from each of the stop buttons 26 to 30 is used to the end only as the trigger when the symbols on the reels 220 (variable display portions 22 to 24) scrolled are stopped and displayed. Therefore, the symbols on each of the reels 220 (variable display portions 22 to 24) are stopped and displayed thereon based on only the lottery result obtained in S31.

[0101] And after the process in S 38 or S41 is executed, in S42 coins corresponding to the winning combination are paid out. Next, procedure shifts to S43 and it is determined whether or not the execution times of the free games reaches to the number of times determined in S12 of Fig. 9. At that time, if it is determined that the execution times does not reach to the number of times determined in S12 of Fig. 9 (S43: NO), procedure returns to S 31 and the above process is repeated. On the other hand, if it is determined that the execution times reaches to the number of times determined in S12 of Fig. 9 (S43: YES), the free game process program is finished.

[0102] As mentioned, in the slot machine 1 according

to the first embodiment, in a case that the free game is done, if it is determined that the "colorless effect" process by using the colorless 7 symbol 193 is done (S 33 in Fig. 15) and at that time, for example, the sinning combination of the red 7-red 7-red 7 is won or the symbol combination is the rd 7-red 7-blue 7 which correspond to loss of the winning combination, the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) is stopped and displayed along the pay line L2 after the red 7 symbol 191 on the right reel 220 (variable display portion 24) and the red 7 symbol 191 on the left reel 220 (variable display portion 22) are automatically stopped and displayed along the pay line L2, as shown in Fig. 16 (S37 in Fig. 15). Further, if 0.5 seconds are elapsed since the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) is stopped and displayed along the pay line L2, and at that time the winning combination of the red 7-red 7-red 7 is won, red color is added to against the colorless 7 symbol 193 on the center reel 220 by displaying red color on the lower liquid crystal display 4, as shown in Fig. 17. Thereby, the symbol of the center reel 220 stopped and displayed along the pay line L2 is displayed as the red 7 symbol 191, and coins corresponding to the winning combination of the red 7-red 7-red 7 are paid out. Further, if the symbol combination is the red 7-red 7-blue 7 which corresponds to loss of the winning combination, blue color is added against the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) by displaying blue color on the lower liquid crystal display 4. Thereby, the symbol on the center reel 220 stopped and displayed along the pay line L2 is displayed as the blue 7 symbol 192 (S38 in Fig. 15).

[0103] Therefore, until 0.5 seconds are elapsed since the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) is stopped and displayed along the pay line L2, the player cannot recognize whether the winning combination of the red 7-red 7-red 7 is won or the winning combination of the blue 7-blue 7-blue 7 is won. Therefore, expectation can be given to the player until 0.5 seconds are elapsed since the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) is stopped and displayed along the pay line L2.

[0104] And in the slot machine 1 according to the first embodiment, if any one of the stop buttons 26 to 30 is pressed by the player, the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) is stopped and displayed along the pay line L2 (S37 in Fig. 15) by using the switch signal output from the pressed stop buttons 26 to 30 as the trigger. At that time, if the winning combination of the red 7-red 7-red 7 is won, red color is added against the colorless 7 symbol 193 on the center reel 220 (variable display portion 23) by displaying red color on the lower liquid crystal display 4. as shown in Fig. 17. Thereby, the symbol on the center reel 220 stopped and displayed along the pay line L2 is displayed as the red 7 symbol 191 and coins corresponding to the winning combination of the red 7-red 7-red 7 are paid

out. Therefore, it can be given an impression to the player as if coins are got based on the so-called "observation push" due to that the player presses any one of the stop buttons 26 to 30.

[0105] Hereinafter, the slot machine according to the second embodiment of the present invention will be described with reference to drawings. Here, the second embodiment has basically the same construction as that in the first embodiment. For example, the base game in the second embodiment is done according to the same procedure in the first embodiment. Thus, characteristic construction in the second embodiment will be mainly described hereinafter.

[0106] First, the free game done in the slot machine 1 of the second embodiment will be described. Here, as mentioned, when the joker 97 is stopped and displayed on the pay line in the base game, game condition shifts to the free game from the base game. Here, in the free game conducted in the slot machine 1 of the second embodiment, three reels of the left reel 220, the center reel 220 and the right reel 220 respectively corresponding to three variable display portions 22 to 24 among five variable display portions 21 to 25 and the variable display portion 24 corresponding to the right reel 220, are utilized.

[0107] At first, the symbol rows which are variably displayed according to rotation of above three reels 220 will be described with reference to Fig. 19A. In Fig. 19A, the symbol row 46 is the symbol row variably displayed on the left reel 220, the symbol row 47 is the symbol row variably displayed on the center reel 220 and the symbol row 48 is the symbol row variably displayed on the right reel 220.

[0108] Here, both the symbol rows 46 and 47 are constructed from four symbols of two red 7s and two blanks (area that no symbol exists) which are voluntarily combined. But, symbol arrangement in the symbol row 46 is different from symbol arrangement in the symbol row 47. And the symbol row 48 is constructed from four symbols of two red 7s and one blank and letters "LE" which are voluntarily combined. Here, the symbol constructed from the letters "LE" is represents the ending of two letters in the words "TRIPLE" and "DOUBLE" which are formed by combining the letters "TRIP" or "DOUB" displayed on the variable display portion 24 with the letters "LE". And the symbol row displayed on the variable display portion 25 in the free game is, as shown in Fig. 19B, constructed from the symbol of the letters "TRIP" and the symbol of the letters "DOUB", both symbols being arranged so as to mutually separate with one symbol apace therebetween.

[0109] As mentioned, when the symbol of the letters "LE" in the symbol row 48 on the right reel 220 and the symbol of the letters "TRIP" and "DOUB" in the symbol row displayed on the variable display portion 24, are combined, both the symbol of the letters "LE" and the symbol of the letters "TRIP" and "DOUB" form for the first time the word "TRIPLE" and "DOUBLE" having

meaning. At this point, the symbol "LE" on the right reel 220 constructs the first divisional symbol obtained by dividing the words "TRIPLE" or "DOUBLE" into two parts and the symbols "TRIP" and "DOUB" in the variable display portion 24 construct the second divisional symbol.

[0110] Next, the lottery table utilized when the lottery of the winning combination is done in the free game will be described with reference to Fig. 20. Fig. 20 is an explanatory view showing the winning combination lottery table in the free game.

[0111] In Fig. 20, the range of the random number values lie within 0 - 127. And if the random number value sampled by the random number sampling circuit 56 lies in a range of 0 - 5, the winning combination of the red 7-red 7-TR (TRIPLE) is won. In this case, it is executed display control that the symbol "LE" on the right reel 220 and the symbol "TRIP" of the variable display portion 24 are combined, thereby the word "TRIPLE", which is formed by combining both the symbols "LE" and "TRIP", is displayed in cooperation with the right reel 220 and the variable display portion 24. Therefore, if the random number value lies in a range of 0 ~ 5, the winning combination of the red 7-red 7-TRIPLE is stopped and displayed on the pay line in the left reel 220, the center reel 220 and the right reel 220 combined with the variable display portion 24. Similarly, if the random number value sampled by the random number sampling circuit 56 lies in a range of 6 ~ 10, the winning combination of the red 7-red 7-DO (DOUBLE) is won. In this case, similar to the above, it is executed display control that the symbol "LE" on the right reel 220 and the symbol "DOUB" of the variable display portion 24 are combined, thereby the word "DOUBLE", which is formed by combining both the symbols "LE" and "TRIP", is displayed in cooperation with the right reel 220 and the variable display portion 24. Therefore, if the random number value lies in a range of 6 ~ 10, the winning combination of the red 7-red 7-DOUBLE is stopped and displayed on the pay line in the left reel 220, the center reel 220 and the right reel 220 combined with the variable display portion 24. Similarly, if the random number value sampled by the random number sampling circuit 56 lies in a range of 11 ~ 26, the winning combination of the red 7-red 7-red 7 is won. In this case, different from the above, is not executed display control that the symbol is displayed by combining the symbol on the right reel 220 with the symbol of the variable display portion 24. Therefore, if the random number value lies in a range of 11 ~ 26, the winning combination of the red 7-red 7-red 7 is stopped and displayed on the pay line in the left reel 220, the center reel 220 and the right reel 220. Here, in a case that the random number value lies in a range of 27 ~ 127, it concludes to loss of the winning combination. In this case, it is not executed display control that the symbol is displayed by combining the symbol on the right reel 220 with the symbol of the variable display portion 24 and the symbol combination other than the winning combination is stopped and displayed on the pay line in

the left reel 220, the center reel 220 and the right reel 220.

[0112] Here, the payout number of coins in a case that the winning combination of the red 7-red 7-TRIPLE is won becomes three times of the payout number of coins in a case that the winning combination of the red 7-red 7-DOUBLE is won. And the payout number of coins in a case that the winning combination of the red 7-red 7-DOUBLE is won becomes twice of the payout number of coins in a case that the winning combination of the red 7-red 7-TRIPLE is won. As mentioned, the payout number of coins changes according to whether the winning combination of the red 7-red 7-TRIPLE is won or the winning combination of the red 7-red 7-DOUBLE is won.

[0113] Next, the main process program executed in the slot machine 1 will be described with reference to Fig. 21. Fig 21 is a flowchart of the main process program. In Fig. 21, at first, in S41A, the start acceptance process is done. This start acceptance process is the process to receive the switch signal output from the start switch 57, the spin switch 58, the 1-BET switch 59, the 3-BET switch 60 or the 5-BET switch 61, based on operation of the start lever 17, the SPIN/REPEAT BET button 12, the 1-BET button 11, the 3-BET button or the 5-BET button 14. At the time that the switch signal output from each switch is received, the game is started.

[0114] And in S42A, various lottery processes are done based on the switch signal output from the start switch 57, the spin switch 58, the 1-BET switch 59, the 3-BET switch 60 or the 5-BET switch 61. Concretely, the lottery of the winning combination in the base game is conducted by using the lottery table shown in Fig. 7.

[0115] And in S43A, the base game process is done. And in S44, based on the lottery result in S2, it is determined whether the free game (joker 97) is triggered or not. This determination is done based on that random number value sampled by the random number sampling circuit 56 lies in a range of 0 ~ 3 at the timing that various switch signals are received (see Fig. 7).

[0116] If the free game is not triggered (S44: NO), the main process is finished. On the other hand, if the free game is triggered (S44: YES), the free game process is done (S45) after the number of the free games which can be continuously conducted is determined. After the above free game process the main process is finished.

[0117] Here, as the above number of the free games, it is set beforehand as 10 games, 20 games and 30 games.

[0118] Here, the base game process executed in S43A will be described with reference to the flowchart shown in Fig. 22. Fig. 22 shows the flowchart of the base game process program.

[0119] In Fig. 22, at first, in S46, scroll of symbols in each of the variable display portions 21 to 25 is done based on the switch signal output from the start switch 57, the spin switch 58, the 1-BET switch 59, the 3-BET switch 60 or the 5-BET switch 61, received in S41A.

[0120] And in S47, if the stop buttons 26 to 30 corre-

sponding to the variable display portions in which the symbols are scrolled are pressed, scroll of the symbols on the variable display portions is stopped by using the switch signals output from the pressed stop buttons as the trigger.

[0121] Here, in the second embodiment, each of the stop buttons 26 to 30 has no relation with so-called "observation push" which is done for purpose to allow technical intervention by the player. And the switch signal output from each of the stop buttons 26 to 30 is used to the end only as the trigger when the symbols scrolled on the variable display portions 21 to 25 are stopped and displayed thereon. Therefore, the symbols on each of the variable display portions 21 to 25 are stopped and displayed thereon based on only the lottery result obtained in S2 of Fig. 21.

[0122] And in S48, coins corresponding to the payout which is set beforehand are paid out according to the symbol combination of the winning combination stopped and displayed over each of the variable display portions in S47. After process in S48 is done, the base game process is finished.

[0123] Next, the free game process done in S45 will be described with reference to Fig. 23. Fig. 23 shows a flowchart of the free game process program.

[0124] In Fig. 23, at first, the lottery of the winning combination in the free game is conducted in S49 based on the lottery table shown in Fig. 20. And in S50, the determination process of the winning combination is done based on the lottery result obtained in S49. Concretely, if the random number value sampled by the random number sampling circuit 56 lies in a range of 0 ~ 5, it is determined that the winning combination of the red 7-red 7-TRIPLE is won. And if the random number value sampled by the random number sampling circuit 56 lies in a range of 6 ~ 10, it is determined that the winning combination of the red 7-red 7-DOUBLE is won. And if the random number value sampled by the random number sampling circuit 56 lies in a range of 11 ~ 26, it is determined that the winning combination of the red 7-red 7-TRIPLE is won. Further, if the random number value sampled by the random number sampling circuit 56 lies in a range of 27 ~ 127, it is determined that loss of the winning combination occurs.

[0125] And in S51, it is determined whether it is conducted or not the symbol stop and display by utilizing the combined symbol in which the symbol of the right reel 220 and the symbol in the variable display portion 24 are combined. Concretely, as mentioned, if the winning combination s of the red 7-red 7-TRIPLE and the red 7-red 7-DOUBLE are won, the symbol combinations corresponding to the winning combinations are stopped and displayed by using the above combined symbol. On the contrary, if the winning combination of the red 7-red 7-TRIPLE is won and loss of the winning combination occurs, the symbol combinations corresponding to the winning combination and loss of the winning combination are stopped and displayed without using the com-

bined symbolL

[0126] In S 51, if it is determined that the symbols are stopped and displayed by using the combined symbol in which the symbol of the right reel 229 and the symbol on the variable display portion 24 are combined (S51: YES), rotation process of the left reel 220, the center reel 220 and the right reel 220 is conducted in S 52.

[0127] In S 53, it is displayed on the lower liquid crystal display 4 the guidance to call player's attention so as to press the stop buttons 27 to 29 corresponding to each of the reels 220. As such guidance, for example, it is conceivable that the message to call player's attention so as to press the stop buttons 27 to 29 corresponding to each of the reels 220 is displayed or the other supplementary message is displayed.

[0128] In S 54, if the player presses the stop buttons 27 to 29 corresponding to each of the reels 220, rotation of each reel 220 is started by using the switch signal output from the stop button switch 67 corresponding to the pressed stop button as the trigger.

[0129] Concretely, for example, in processes in S49 and S50, if the winning combination of the red 7-red 7-TRIPLE is won, the red 7 symbol on the left reel 220 is stopped on the pay line and the red 7 symbol on the center reel 220 is stopped on the pay line and further the symbol "LE" on the right reel 220 is stopped on the pay line. Similarly, if the winning combination of the red 7-red 7-DOUBLE is won, the red 7 symbol on the left reel 220 is stopped on the pay line and the red 7 symbol on the center reel 220 is stopped on the pay line and further the symbol "LE" on the right reel 220 is stopped on the pay line.

[0130] In this state, the symbol combination of the red 7-red 7-LE is only displayed on the pay lines on each of three reels 220, therefore the player cannot yet recognize the kind of the winning combination which is won at that time.

[0131] Further, in S 55, scroll of the symbol is started on the variable display portion 24 based on that the symbols are stopped on each reel 220. Concretely, scroll of the symbol "TRIP" and the symbol "DOUB" (the second divisional symbol) is conducted on the variable display portion 24, the symbol "TRIP" and the symbol "DOUB" being used as the symbol which is combined with the symbol "LE" (the first divisional symbol) on the right reel 220.

[0132] Thereafter, in S56, it is displayed on the lower liquid crystal display 4 the guidance to call player's attention so as to press the stop buttons 27 to 29 corresponding to each of the reels 220. As such guidance, for example, it is conceivable that the message to call player's attention so as to press the stop buttons 27 to 29 corresponding to each of the reels 220 is displayed or the other supplementary message is displayed.

[0133] In S57, if the player presses the stop button 29 corresponding to the variable display portion 24, scroll of the symbol on the variable display portion 24 is stopped by using the switch signal output from the stop

button switch 67 corresponding to the pressed stop button 29 as the trigger.

[0134] At that time, the winning combination of the red 7-red 7-TRIPLE is won, the symbol "TRIP" is stopped and displayed on the pay line on the variable display portion 24. Thereby, as shown in Fig. 24, the symbol "TRIP" stopped on the variable display portion 24 and the symbol "LE" stopped on the pay line of the right reel 220 in S54 are combined and displayed. As a result, the winning combination of the red 7-red 7-TRIPLE is displayed by the red 7 symbol already stopped on the left reel 220, the red 7 symbol already stopped on the center reel 220 and the symbol "TRIPLE" constructed from the first divisional symbol "LE" stopped on the right reel 220 and the second divisional symbol "TRIP" stopped and displayed on the variable display portion 24.

[0135] Here, even in a case that the winning combination of the red 7-red 7-DOUBLE is won, as similar as the above mentioned case, the symbol "DOUB" stopped and displayed on the variable display portion 24 and the symbol "LE" stopped on the pay line of the right reel 220 in S54 are combined and displayed, as a result, the winning combination of the red 7-red 7-DOUBLE is displayed by the red 7 symbol already stopped on the left reel 220, the red 7 symbol already stopped on the center reel 220 and the symbol "DOUBLE" constructed from the first divisional symbol "LE" stopped on the right reel 220 and the second divisional symbol "DOUB" stopped and displayed on the variable display portion 24.

[0136] After S 57 is executed, procedure shifts to S61.

[0137] In S51, it is determined that stop and display of the symbol is not done by using the combined symbol of the symbol on the right reel 220 and the symbol on the variable display portion 24 (S51: NO). rotation process of the left reel 220, the center reel 220 and the right reel 220 is conducted in S58.

[0138] In S59, it is displayed on the lower liquid crystal display 4 the guidance to call player's attention so as to press the stop buttons 27 to 29 corresponding to each of the reels 220. As such guidance, for example, it is conceivable that the message to call player's attention so as to press the stop buttons 27 to 29 corresponding to each of the reels 220 is displayed or the other supplementary message is displayed.

[0139] In S60, if the player presses the stop buttons 27 to 29 corresponding to each of the reels 220, rotation of each reel 220 is stopped by using the switch signal output from the stop button switch 67 corresponding to the pressed stop button as the trigger.

[0140] Concretely, for example, in processes in S49 and S50, if the winning combination of the red 7-red 7 is won, the red 7 symbol on the left reel 220 is stopped on the pay line and the red 7 symbol on the center reel 220 is stopped on the pay line and further the red 7 symbol on the right reel 220 is stopped on the pay line.

[0141] Here, if loss of the winning combination occurs, the symbol combination other than the winning combi-

nation is stopped on the pay line.

[0142] Thereafter, procedure shifts to S61.

[0143] In S61, as mentioned, coins corresponding to the payout set beforehand are paid out according to the symbol combination of the winning combination stopped and displayed on the pay line. After process in S61 is done, it is determined in S62 whether the number of the free games determined in S44 is finished or not. If the predetermined number of the free games is not finished (S62: NO), procedure returns to S49 and the free game is conducted again. On the other hand, if it is determined that the predetermined number of the free games is finished (S62: YES), the free game process is finished.

[0144] As mentioned in detail, in the slot machine 1 according to the second embodiment, in the free game which is conducted continuous to the base game based on that the trigger of the free game is realized, if the specific winning combination (the red 7-red 7-TRIPLE or The red 7-red 7-DOUBLE) is won, the red 7s are stopped on the left reel 220 and the center reel 220 and the first divisional symbol "LE", which is obtained by dividing the word "TRIPLE" or "DOUBLE", is stopped on the pay line of the right reel 220, thereafter scroll of the symbols is done on the variable display portion 24 corresponding to the right reel 220 and the second divisional symbol "TRIP" or "DOUB" is stopped on the pay line. Therefore, at first the symbol combination of the red 7-red 7-LE can be stopped and displayed on each reel 220 so that the player cannot recognize the kind of the winning combination which is won, and thereafter the second divisional symbol "TRIP" or "DOUB", which is lastly stopped and displayed on the variable display portion 24, can be stopped and displayed so that the player can recognize the winning combination at the time that the second divisional symbol is stopped and displayed. Thus, expectation of the player can be highly maintained till the second divisional symbol "TRIP" or "DOUB" is stopped and displayed on the variable display portion 24 since the symbol combination of the red 7-red 7-LE is stopped and displayed on each reel 220.

[0145] And after the second divisional symbol "TRIP" or "DOUB" us started to scroll on the variable display portion 24 corresponding to the right reel 220, scroll of the second divisional symbol is stopped based on that the player presses the stop button 29. Therefore, since the symbol "TRIPLE" or "DOUBLE" is stopped and displayed on the basis of press operation of the stop button 29 by the player, it can be given to the player satisfaction that the winning combination can be obtained by his or her own press operation of the stop button 29.

[0146] The present invention is not limited to the first embodiment, and various modifications and improvements can be, of course, done within the scope of the present invention

[0147] For example, in the slot machine 1 according to the first embodiment, since the free game is conducted while seeing the symbols formed on three reels 220 through each of the variable display portions 22 to 24

on the lower liquid crystal display 4, red color or blue color is added to the colorless 7 symbol 193 of the center reel 220 (variable display portion 23) by displaying red color or blue color in the area superimposed with the colorless 7 symbol 139 on the center reel 220. However, the slot machine 1 may be constructed as follows. That is, the colorless 7 symbol 193 may be projected on the area of the liquid crystal display 4 superimposing with each of the variable display portions 22 to 24 without forming the colorless 7 symbol 193 on three reels 220, and the red 7 symbol 191 or the blue 7 symbol 192 may be seen through the transparent area on the liquid crystal display 4, the transparent area being formed after 0.5 seconds are elapsed.

[0148] And in addition to the "colorless effect" process mentioned above, scroll of the symbols on three reels 220 may be done on the liquid crystal display 4.

[0149] Therefore, the above mentioned "colorless effect" process can be used in the base game. At that time, a part of the blank (area that no symbol exists) 96 may be used as the colorless 7 symbol 193 and after 0.5 seconds are elapsed since such part of the blank 96 is stopped and displayed along the pay line L2, the triple BAR 91, the cherry 29, the double BAR 93, the seven 94, the single BAR 95 and the trigger symbol 97 may be projected on such part.

[0150] Further, when the trigger symbol 97 is projected, gradation of the trigger symbol 97 and appearance speed of the trigger symbol 97 may be changed in proportion to the number of times in the free game.

[0151] And although the above mentioned "colorless effect" process is done on the colorless 7 symbol 193 of the center reel 220 (variable display portion 23) which is stopped and displayed along the pay line L2, the "colorless effect" process may be done on the colorless 7 symbol 193 on the right or left reel 220 which is stopped and displayed along the pay line L2. Further, the pay line L2 is not limited to the center line and the colorless 7 symbol 193 stopped and displayed along the top line or the bottom line may be used.

[0152] And in the slot machine 1 according to the first embodiment, when the base game is conducted, although all symbols, which are stopped and displayed on the pay line over each of the variable display portions 21 to 25, are determined according to the random number value sampled by the random number sampling circuit 56 (Fig. 7), the symbol stopped and displayed on the pay line may be determined every each of the variable display portions 21 to 25. In order to embody this concept, for example, code numbers 0 ~ 10 are allotted to the symbol rows 41 to 45 each of which corresponds to each of the variable display portions 21 to 25 shown in Fig. 4, and the lottery table shown in Fig. 25 is provided. And five random number values are sampled so as to correspond to each of the variable display portions 21 to 25. For example, if the random number value corresponding to the variable display portion 21 is the code number 1, the symbol to which the code number 1 is

allotted is stopped and displayed on the pay line, and if the random number value corresponding to the variable display portion 22 is the code number 2, the symbol to which the code number 2 is allotted is stopped and displayed on the pay line. And if the random number value corresponding to the variable display portion 23 is the code number 3, the symbol to which the code number 3 is allotted is stopped and displayed on the pay line and if the random number value corresponding to the variable display portion 24 is the code number 4, the symbol to which the code number 4 is allotted is stopped and displayed on the pay line. And if the random number value corresponding to the variable display portion 25 is the code number 5, the symbol to which the code number 5 is allotted is stopped and displayed on the pay line.

[0153] Here, in the lottery table shown in Fig. 25, although the random number value is evenly allotted against each of the code numbers, the lottery table, in which the random number values are unevenly allotted against the code numbers as shown in Fig. 26, may be utilized in order that the joker 97 to shift to the free game is made difficult to be stopped and displayed on the pay line.

[0154] And as mentioned, determining the symbol stopped and displayed on the pay line every each of the variable display portions 21 to 25 can be also conducted for the symbols on the reels 220 (variable display portions 22 to 24) in the free game.

[0155] And in the slot machine 1 of the first embodiment, when the free game is conducted, rotation of the reels 220 is stopped in S37 in the Fig. 15 by using the switch signal output from the stop buttons 26 to 30 pressed by the player as the trigger, and in S38 in Fig. 15, the colorless 7 symbol 193 utilized in the "colorless" process is colored after the predetermined seconds (0.5 seconds) are elapsed since the colorless 7 symbol 193 is stopped. Concerning with this point, after rotation of the reels 220 is stopped (S37 in Fig. 15), the colorless 7 symbol 193 utilized in the "colorless effect" process may be colored in S38 in Fig. 15 by using the switch signal output from the stop buttons 26 to 30 pressed by the player as the trigger. And in S37 in Fig. 15, the reels 220 may be automatically stopped after a predetermined time is elapsed, in no relation to whether the player presses the stop buttons 26 to 30 or not, and in S38 in Fig. 15, the colorless 7 symbol 193 may be colored by using the switch signal output from the stop buttons 26 to 30 pressed by the player. This concept may be also conducted in the base game.

[0156] Further, in the slot machine of the first embodiment, when the base game is conducted, scroll of each of the symbols on the variable display portions 21 to 25 is stopped (S22 in Fig. 10) by using the switch signal output from the stop buttons 26 to 30 pressed by the player as the trigger, in a case that the stop buttons 26 to 30 corresponding to the variable display portions 21 to 25 on which the symbols are scrolled are pressed by

the player, and also when the free game is conducted, the reels 220 are stopped (S37, S41 in Fig. 15) by using the switch signal output from the pressed stop button among the stop buttons 26 to 30, in a case that any one of the stop buttons 26 to 30 is pressed by the player. At this point, although the stop buttons to be able to output the switch signal as the above trigger are constructed from five stop buttons 26 to 30, one stop button may be formed.

[0157] Further, in the base game (S22 in Fig. 10), scroll of the symbols may be stopped on the variable display portions 21 to 25 after a predetermined time is elapsed in no relation to whether the player presses the stop buttons 26 to 30 or not, and on the contrary, in only the free game (S37, S41 in Fig. 15), rotation of the reels 220 may be stopped by using the switch signal output from the pressed stop button among the stop buttons 26 to 30, in a case that any one of the stop buttons 26 to 30 is pressed by the player.

[0158] Here, the present invention is not limited to the above mentioned second embodiment and various modifications and improvements can be done within the scope of the present invention.

[0159] For example, in the slot machine 1 of the second embodiment, the symbol "LE" formed in the symbol row of the right reel 220 among the reels 220 arranged in the cabinet 2 is first stopped, and the symbol "DOUB" or the symbol "TRIP" is continuously stopped on the variable display portion 24 of the lower liquid crystal display 4. The present invention is not limited to this. For example, the symbol "DOUB" or the symbol "TRIP" may be first stopped on the variable display portion 24 and the symbol "LE" in the symbol row of the right reel 220 may be continuously stopped.

[0160] Here, as for the stop order of each symbol, it is desirable that the common symbol (the symbol "LE" in the second embodiment) is first stopped and the symbol, which affects the payout of coins (the symbol "DOUB" and the symbol "TRIP" in the second embodiment) is continuously stopped. As mentioned, by controlling the stop order of the symbols, payout of coins can be changed based on the combination with the symbol lastly stopped, as a result, expectation of the player can be highly maintained.

[0161] And in the base game, the symbol rows 41 to 45 shown in Fig. 4 are displayed on five variable display portions 21 to 25 of the lower liquid crystal display 4, and in the free game the symbol rows 46 to 48 shown in Fig. 17A are rotated on three reels 220 and the symbol is displayed on the variable display portion 24, thereby the free game is done. The present invention is not limited to this. For example, the base game may be done by using five reels 220 on each of which the symbol row shown in Fig. 4 is formed and the free game may be done the symbol rows 46 to 48 and the second divisional symbol shown in Fig. 19A are variably displayed on the lower liquid crystal display 4.

[0162] And in the base game, although the stop but-

tons 26 to 30 are provided corresponding to the variable display portions 21 to 25 and the trigger signal is output by preasing the stop button corresponding to the variable display portion on which the symbols are scrolled, stop display of the symbol may be done on all of plural variable display portions utilized in the game except for one variable display portion and only the switch signal output from the stop button corresponding to the remaining variable display portion may be accepted. Further, if each of the stop buttons 26 to 30 is not pressed for a predetermined time, each of the variable display portions 2 to 25 may be automatically stopped and displayed as the predetermined time is elapsed.

[0163] And in the slot machine 1 of the second embodiment, when the base game is conducted, although the winning combination lottery is conducted base on the lottery table shown in Fig. 7, the lottery of the stop symbol may be done every variable display portion utilized in the game. In this case, the lottery can be conducted as follows.

[0164] At first, as shown in Fig. 27, it is prepared the table that each symbol, which exists in the symbol rows 41 to 45 variably displayed on five variable display portions 21 to 25 which are utilizable in the game, and the code number are corresponded. And as shown in Fig. 28, it is prepared the lottery table that the code number of the symbol in each symbol row and the random number value are corresponded. Here, in the lottery table shown in Fig. 28, it is formed so that the symbol in each symbol row is selected with even probability and without inclination.

[0165] And corresponding to the variable display portions utilized in the game, the lottery of the stop symbol is done in use of the code table shown in Fig. 27 and the lottery table shown in Fig. 28. For example, since five variable display portions are used in the base game, five lotteries are done for five variable display portions 21 to 25.

[0166] Concretely, among five variable display portions, at first, the lottery of the symbol stopped on the variable display portion 21 is done. For example, if the obtained random number value is 4, the symbol seven (7) corresponding to the code number 4 in the symbol row 41 is stopped based on the lottery table of Fig. 28. Here, the same lottery is done as the remaining four variable display portions 42 to 45.

[0167] Here, in the second embodiment, although the variable display portion 23 including the joker 97 is almost utilized in the game, the joker 97 is also selected with even probability, similarly to the other symbol, thereby it concludes that the free game is easily triggered. Therefore, in order to make inclination in the select probability of each symbol, the lottery table shown in Fig. 29 may be utilized. In the lottery table shown in Fig. 29, the range of the random number values lies within $0 \sim 127$. Especially, the probability that the joker 97 is stopped becomes $1/128$, as a result, the select probability of the joker 97 is set so that it is difficult to

shift to the free game from the base game. And inclination is formed for the select probability of the other symbol. Both the first embodiment and the second embodiment mentioned above can be carried out in the slot machine 1 at the same time.

Claims

1. A gaming machine including a variable display device in which a plurality of variable display portions conducting variable display of symbols are provided, the gaming machine giving a payout when the symbols variably displayed on each of the variable display portions are stopped along a pay line with a symbol combination corresponding to a predetermined winning combination,
the gaming machine further comprising:

a variable display controller for controlling the variable display of the symbols conducted on each of the variable display portions:

a winning combination lottery device for conducting lottery of the winning combination;

wherein when the predetermined winning combination is won through the winning combination lottery device the variable display controller stops and displays predetermined symbols forming the symbol combination corresponding to the predetermined winning combination on all of the variable display portions except for one variable display portion among the plural variable display portions, and the variable display controller displays a predetermined symbol on the one variable display portion in a first mode in which the predetermined symbol combination becomes unrecognizable, and

wherein the variable display controller displays the predetermined symbol on the one variable display portion in a second mode in which the predetermined symbol combination becomes recognizable after a predetermined time is elapsed.

2. The gaming machine according to claim 1, wherein the variable display device is constructed from a plurality of reels on outer periphery of each of which a symbol row having a plurality of symbols is formed, the reels being rotatably supported in the gaming machine and a liquid crystal display arranged in front of the reels, the liquid crystal display having the variable display portions corresponding to each of the reels.

3. The gaming machine according to claim 2, wherein the symbol row formed on the outer periphery of each reel includes a colorless symbol,

wherein each of the variable display portions of the liquid crystal display conducts color display to give a color to the colorless symbol, and

wherein the variable display controller controls rotation of each reel in the first mode so that the colorless symbol is stopped and displayed along the pay line and controls each variable display portion in the second mode so that the color is added to the colorless symbol in a superimposed state with the colorless symbol.

- 4. The gaming machine according to claim 3, further comprising:

an effect determination device for determining whether a colorless effect is done based on rotation control of each reel to stop and display the colorless symbol along the pay line and color display control of each variable display portion to display the color in the superimposed state with the colorless symbol;

wherein the variable display controller conducts the colorless effect by utilizing each reel and each variable display portion of the liquid crystal display when determined by the effect determination device that the colorless effect is done.

- 5. The gaming machine according to claim 4, further comprising:

a reel determination device for determining one reel on which the colorless effect is conducted among the plural reels;

wherein the variable display controller conducts the colorless effect by utilizing the one reel determined by the reel determination device.

- 6. The gaming machine according to claim 4, wherein a base game is conducted by utilizing each variable display portion of the liquid crystal display and a free game is conducted continuous to the base game when a specific condition is realized in the base game, and

wherein the colorless effect is done in the free game.

- 7. The gaming machine according to claim 1, further comprising:

a stop instruction device for instructing stop of the symbols variably displayed on each variable display portion through the variable display controller; and

a stop controller for stopping the symbols on each variable display portion based on the stop instruction output from the stop instruction de-

vice.

- 8. A gaming machine including a variable display device in which a plurality of variable display portions conducting variable display of symbols are provided, the gaming machine giving a payout when the symbols variably displayed on each of the variable display portions are stopped along a pay line with a symbol combination corresponding to a predetermined winning combination,

the gaming machine further comprising:

a variable display controller for controlling the variable display of the symbols conducted on each of the variable display portions;

a winning combination lottery device for conducting lottery of the winning combination;

wherein when the predetermined winning combination is won through the winning combination lottery device the variable display controller stops and displays predetermined symbols forming the symbol combination corresponding to the predetermined winning combination on all of the variable display portions except for one variable display portion among the plural variable display portions, and the variable display controller displays a first divisional symbol forming a predetermined symbol with a second divisional symbol on the one variable display portion, and

wherein the variable display controller displays the second divisional symbol on the one variable display portion while the first divisional symbol is displayed on the one variable display portion.

- 9. The gaming machine according to claim 8, wherein the variable display device is constructed from a plurality of reels on outer periphery of each of which a symbol row having a plurality of symbols is formed, the reels being rotatably supported in the gaming machine and a liquid crystal display arranged in front of the reels, the liquid crystal display having the variable display portions corresponding to each of the reels.

- 10. The gaming machine according to claim 9, wherein the first divisional symbol is included in the symbol row formed on the outer periphery of one reel among the reels,

wherein the variable display portion of the liquid crystal display corresponding to the one reel displays the second divisional symbol which forms the predetermined symbol with the first divisional symbol, and

the variable display controller controls rotation of the one reel so that the first divisional symbol is stopped and displayed along the pay line, and controls the variable display portion of the liquid

crystal display so that the second divisional symbol is displayed in a state that the first divisional symbol is stopped.

11. The gaming machine according to claim 10, further comprising: 5

a combination symbol effect determination device for determining whether a combination symbol effect is done or not, based on rotation control of the one reel to stop and display the first divisional symbol along the pay line and display control of the variable display portion to display the second divisional symbol in the state that the first divisional symbol is stopped, 10 15

wherein when the combination symbol effect determination device determines that the combination symbol effect is conducted the variable display controller conducts the combination symbol effect by utilizing the one reel and the variable display portion of the liquid crystal display. 20

12. The gaming machine according to claim 11, wherein a base game is conducted by utilizing each variable display portion of the liquid crystal display and a free game is conducted continuous to the base game when a specific condition is realized in the base game, and 25

wherein the combination symbol effect is done in the free game. 30

13. The gaming machine according to claim 8, further comprising: 35

a stop instruction device for instructing stop of the second divisional symbol in a state that the first divisional symbol is stopped;

wherein the variable display controller stops the second divisional symbol based on a stop instruction output from the stop instruction device. 40

14. The gaming machine according to claim 8, wherein the variable display controller stops the second divisional symbol in a state that the first divisional symbol is stopped when the predetermined symbol is stopped on the variable display portion on which variable display of the symbols is lastly stopped among the plural variable display portions. 45 50

15. A gaming machine comprising:

a plurality of reels which are rotatably supported in the gaming machine, each reel having a symbol row with a plurality of symbols on an outer periphery thereof; 55
a liquid crystal display arranged in front of the

reels, the liquid crystal display having variable display portions corresponding to the reels;

wherein the gaming machine gives a payout when the symbols variably displayed on each reel and each variable display portion of the liquid crystal display are stopped along a pay line with a symbol combination corresponding to a predetermined winning combination,

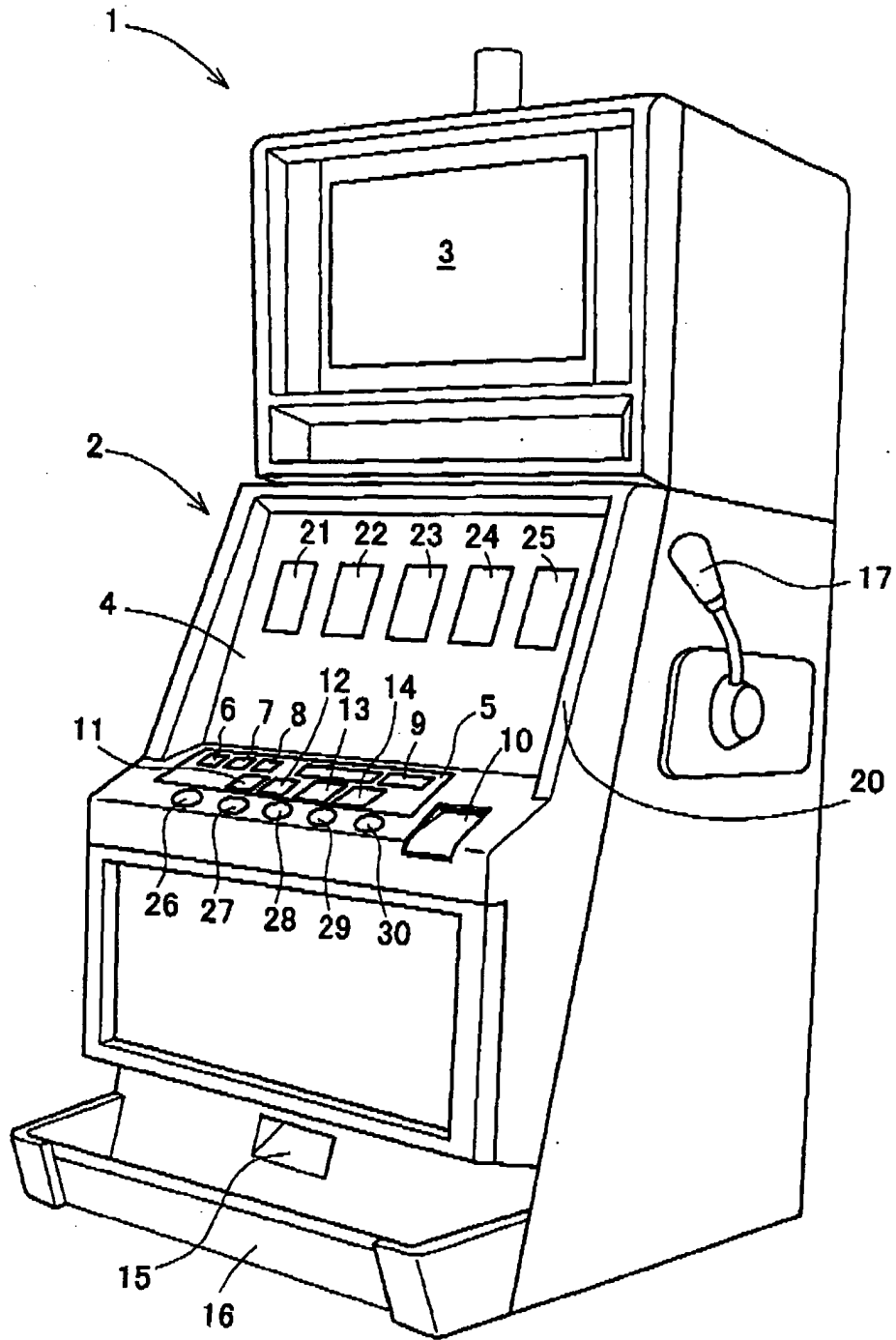
the gaming machine further comprising:

a variable display controller for controlling variable display of the symbols conducted on each reel and each variable display portion of the liquid crystal display;

a winning combination lottery device for conducting lottery of the winning combination;

wherein when the predetermined winning combination is won through the winning combination lottery device the variable display controller stops and displays predetermined symbols forming the symbol combination corresponding to the predetermined winning combination, by cooperation of each reel and each variable display portion of the liquid crystal display.

FIG. 1



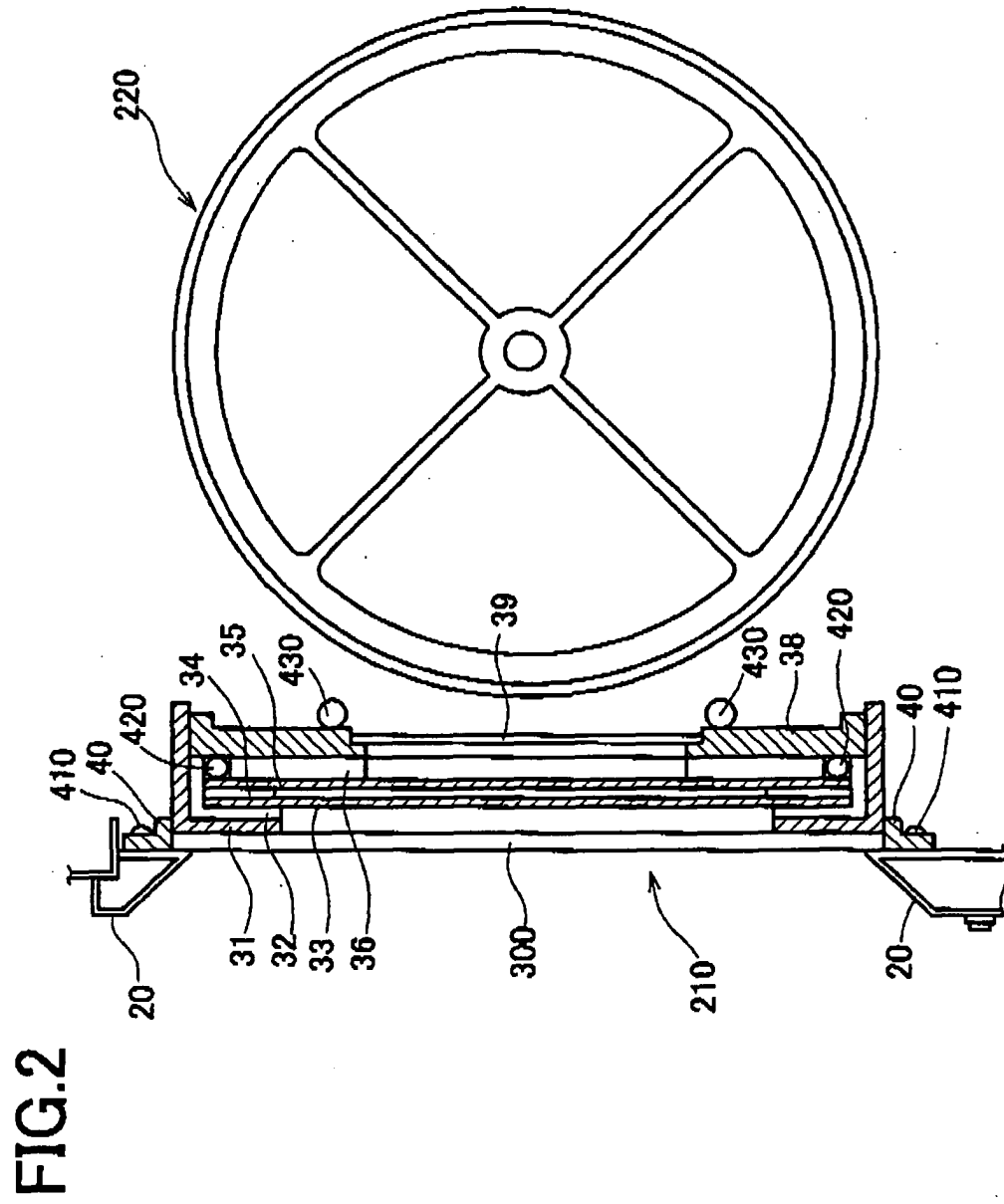


FIG.3

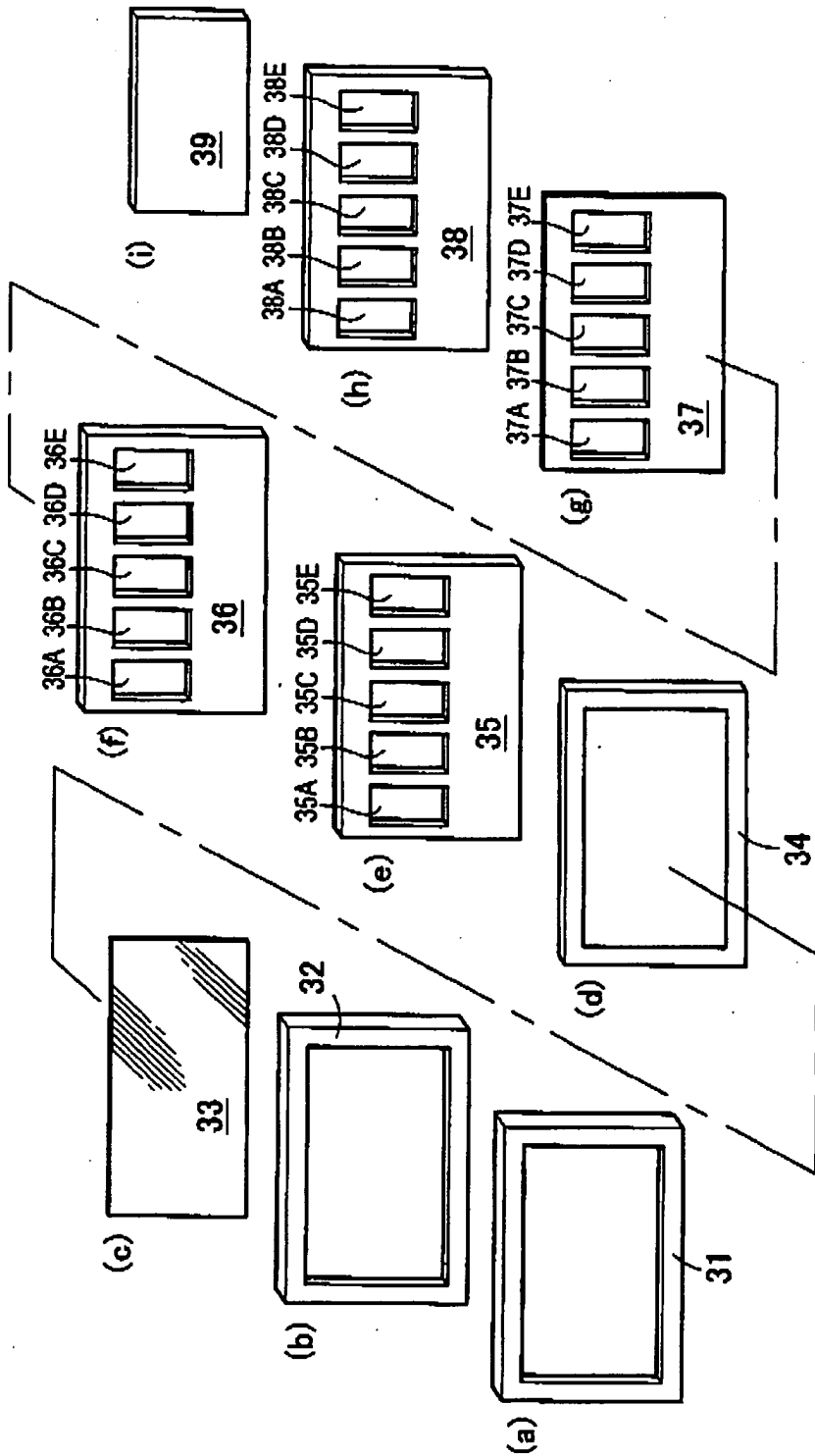


FIG.4

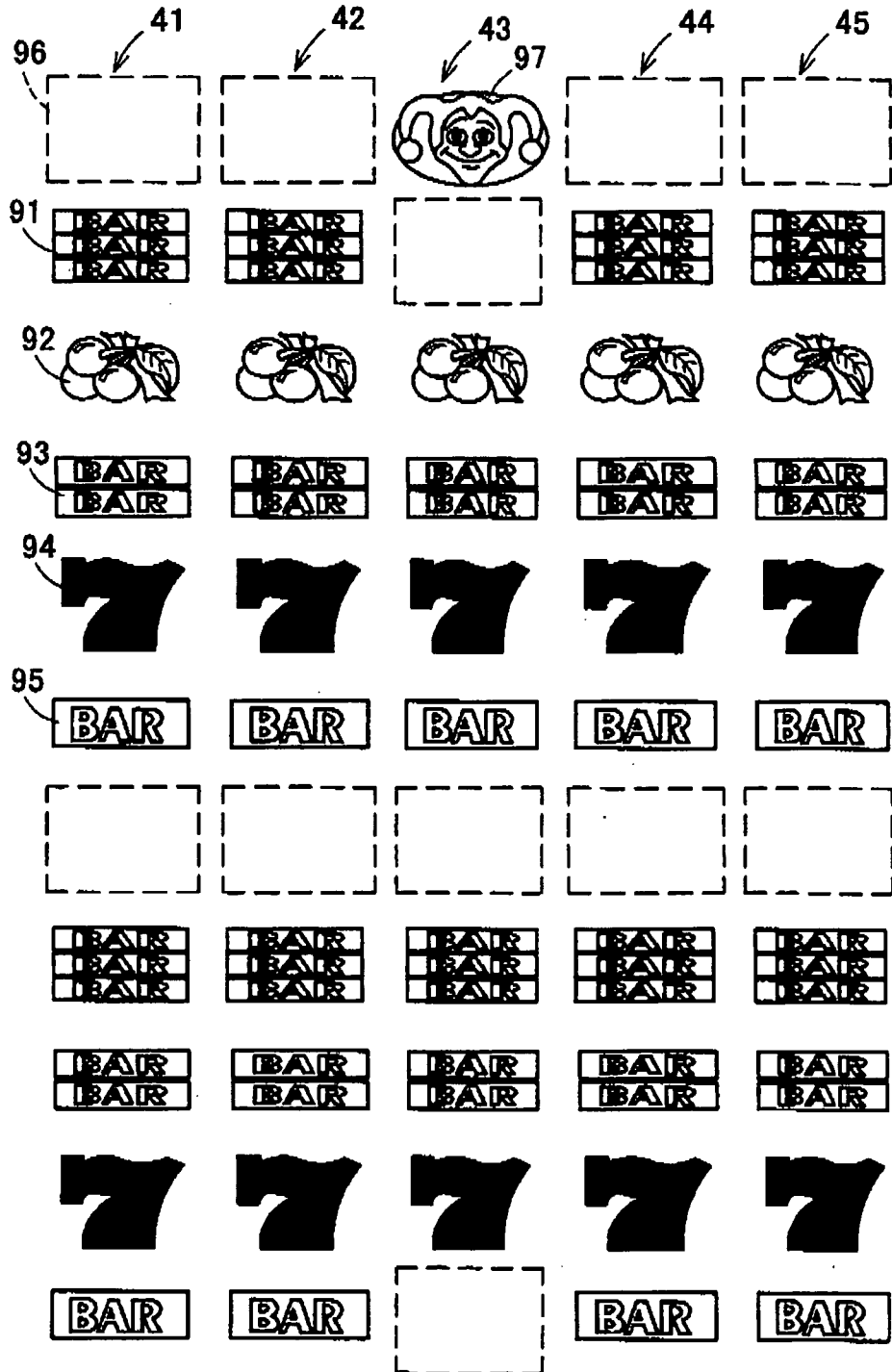


FIG.5

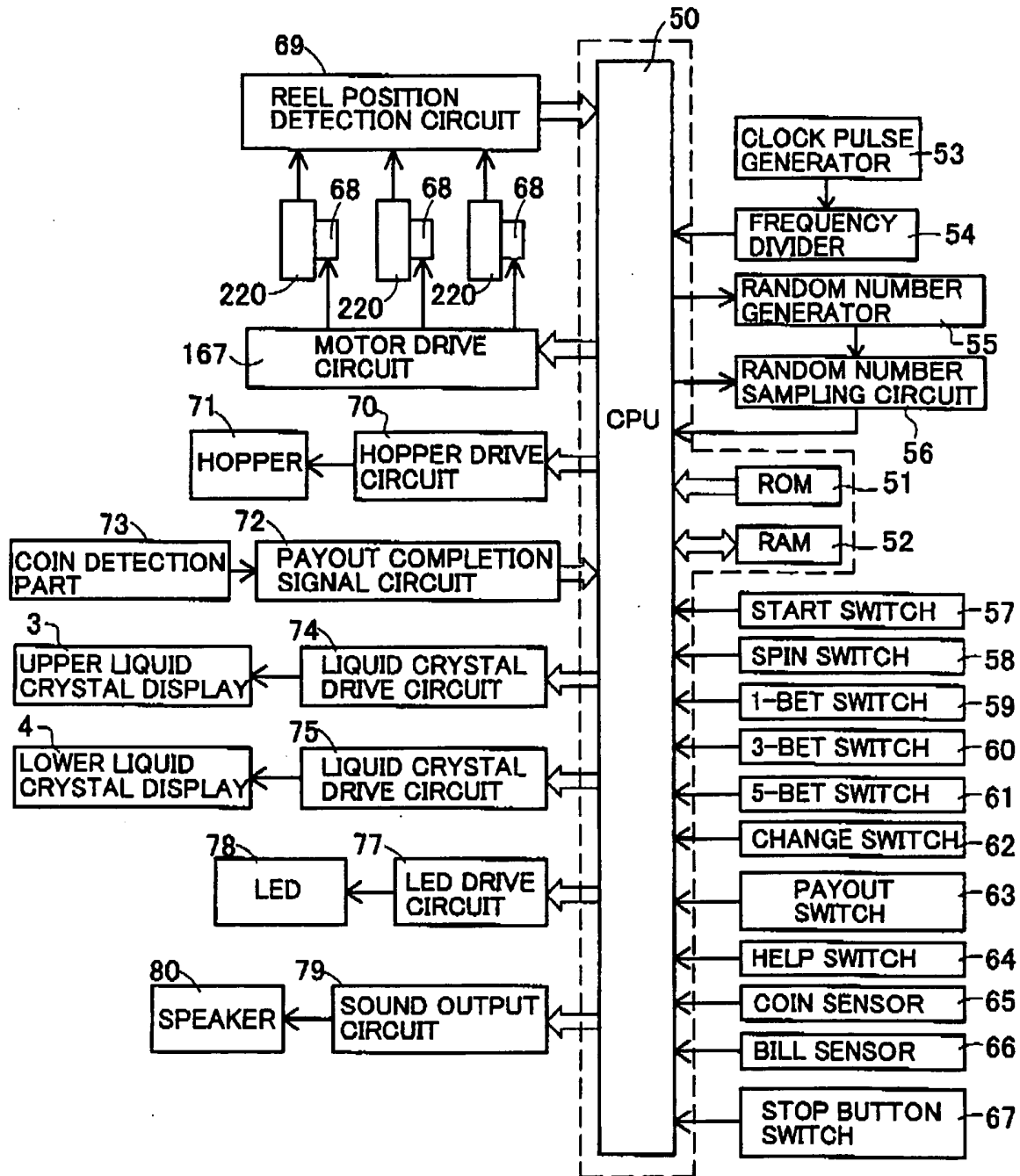


FIG.6

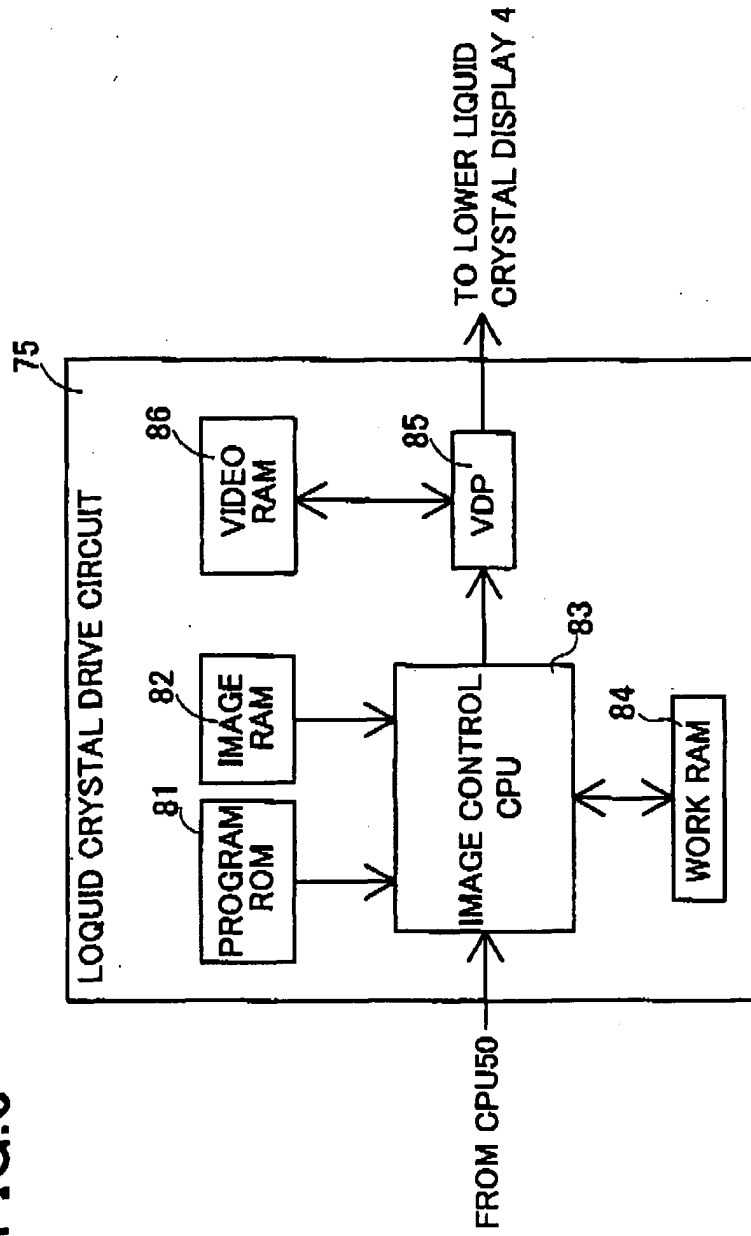


FIG.7

CONTENTS	RANDOM NUMBER VALUE RANGE
TRIGGER OF FREE GAME	0~3
7	4~15
3BAR	16~31
2BAR	32~63
1BAR	64~255
CHERRY	256~511
LOSS OF WINNING COMBINATION	512~16383

FIG.8

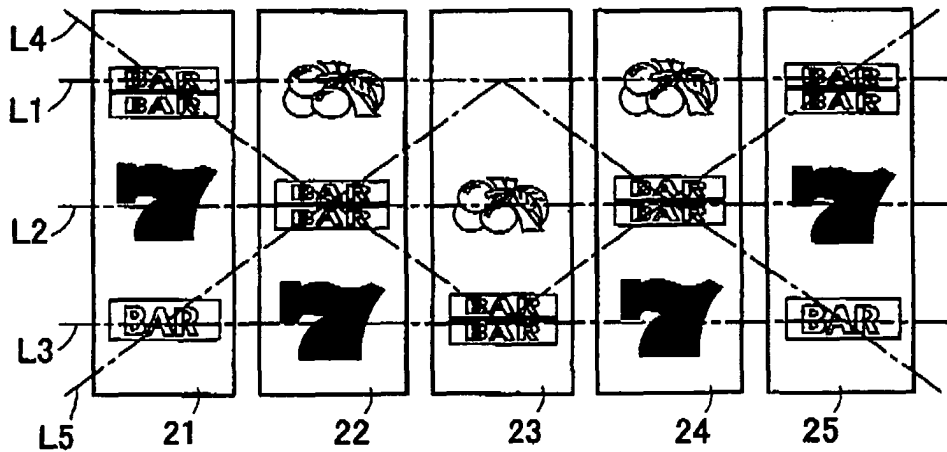


FIG.9

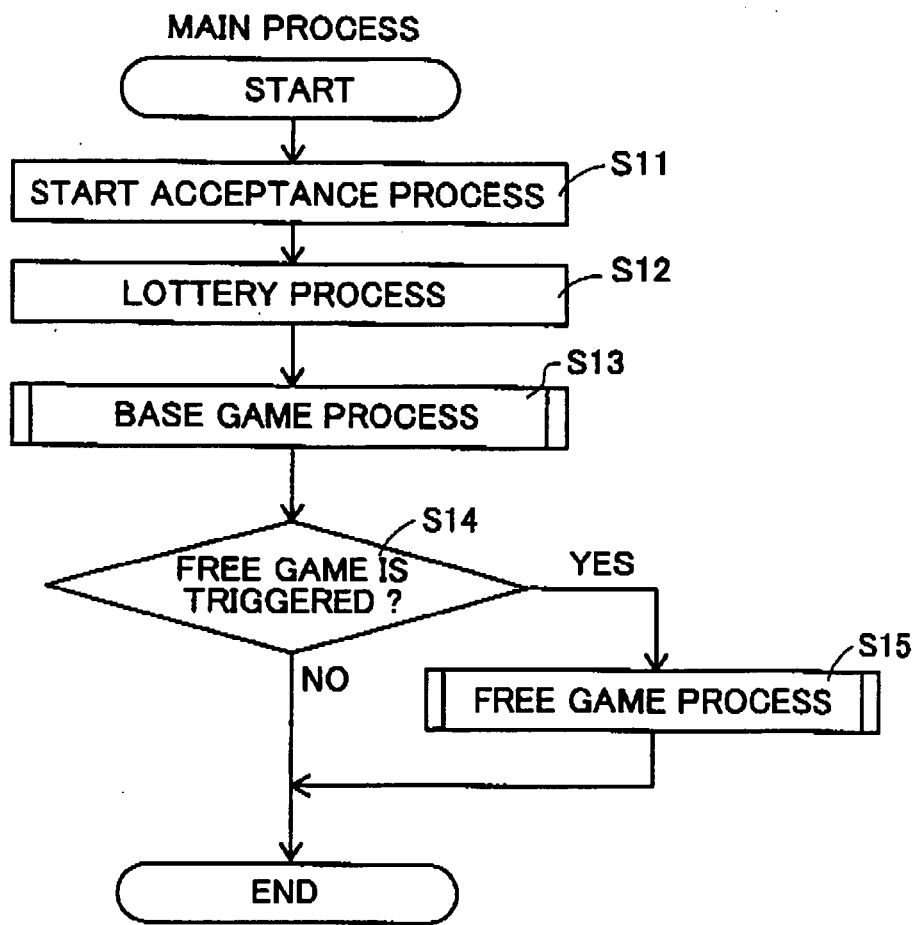


FIG.10

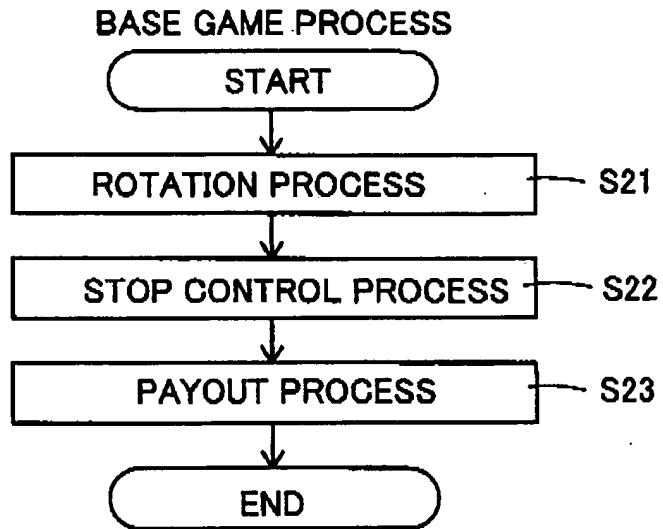


FIG.11

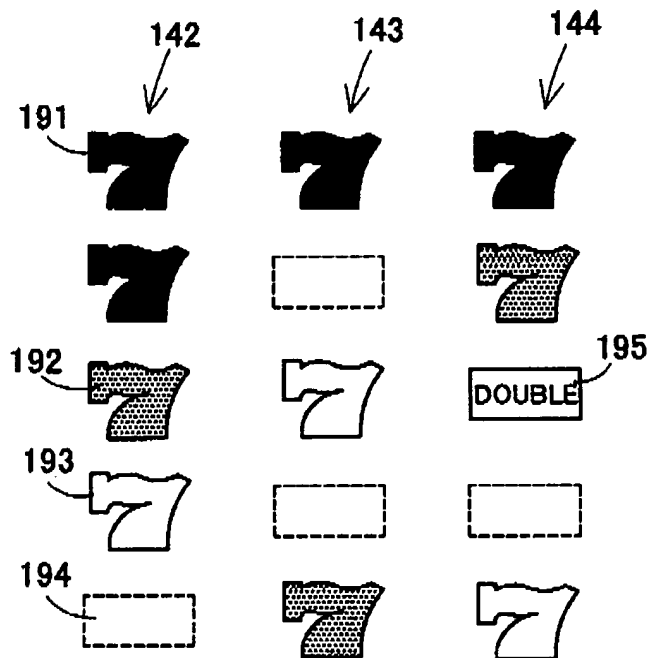


FIG.12

SYMBOL COMBINATION	RANDOM NUMBER VALUE RANGE	
	COLORLESS EFFECT IS DONE	COLORLESS EFFECT IS NOT DONE
RED7-RED7-RED7	0~102	103~127
RED7-RED7-BLUE7	0~15	16~127
RED7-RED7-BLANK	-	-
BLUE7-BLUE7-BLUE7	0~102	103~127
BLUE7-BLUE7-RED7	0~35	36~127
BLUE7-BLUE7-BLANK	-	-

FIG.13

UTILIZED REEL	RANDOM NUMBER VALUE RANGE
LEFT REEL	0~21
CENTER REEL	22~42
RIGHT REEL	43~63

FIG.14

SYMBOL COMBINATION	RANDOM NUMBER VALUE RANGE
RED7-RED7-DO	0~5
BLUE7-BLUE7-DO	6~10
RED7-RED7-RED7	11~26
BLUE7-BLUE7-BLUE7	27~33
LOSS OF WINNING COMBINATION	33~127

FIG.15

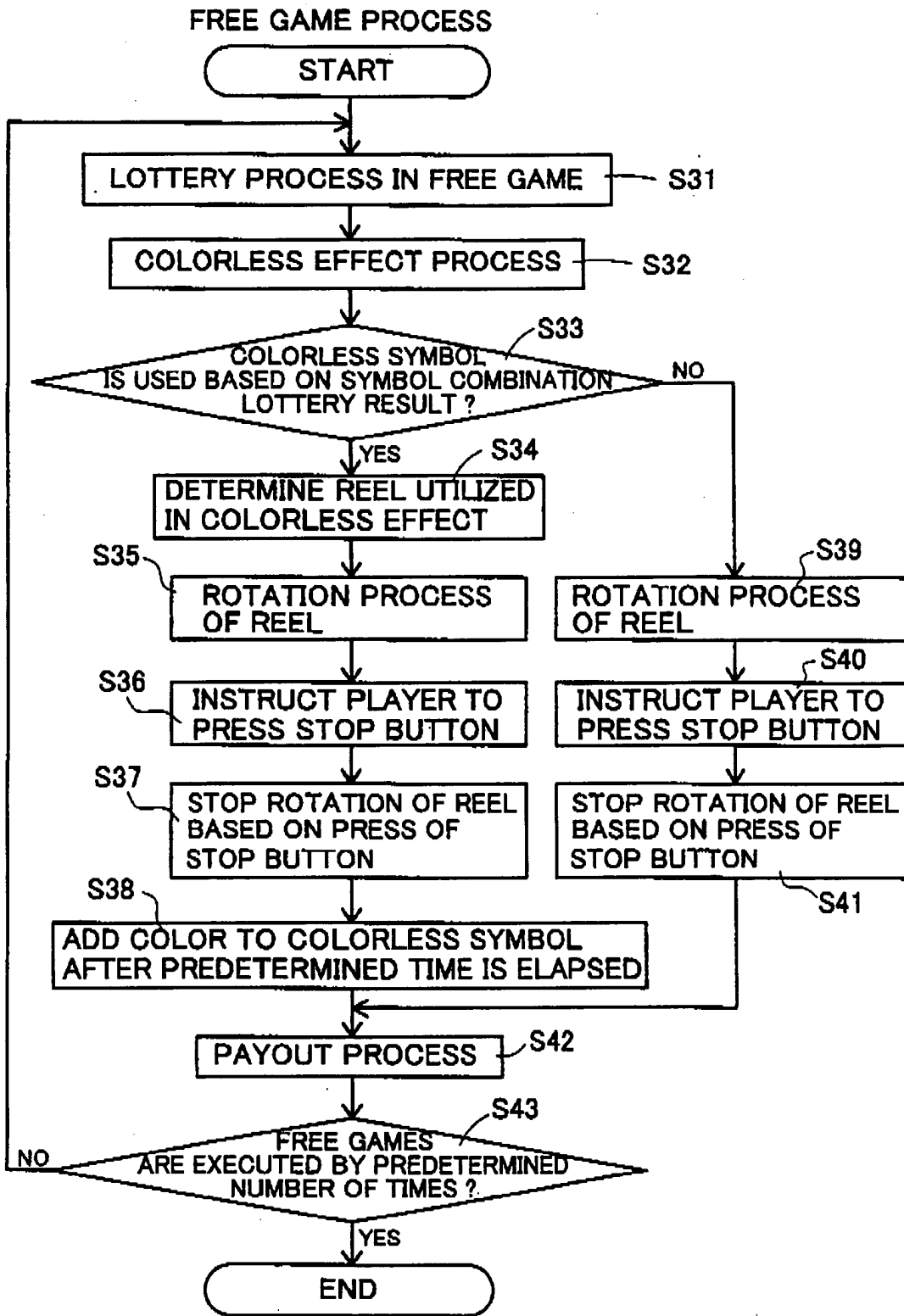


FIG.16

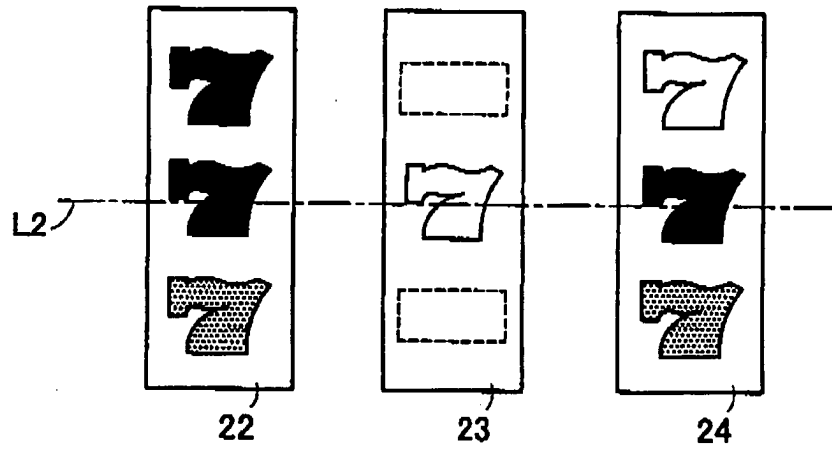


FIG.17

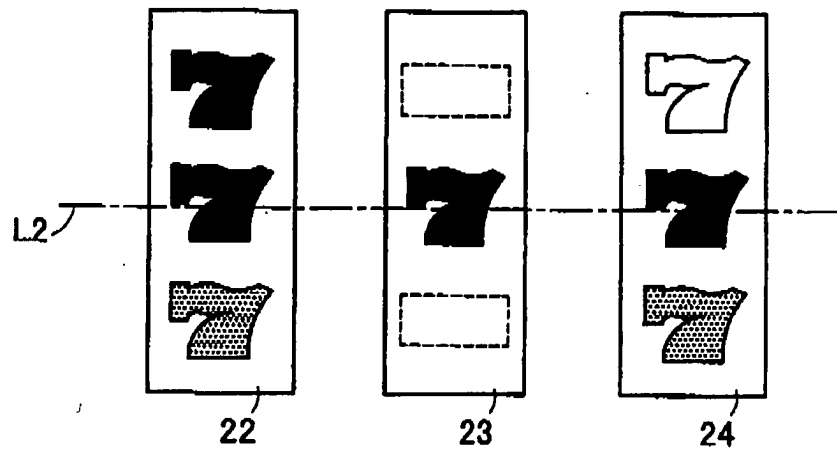


FIG.18

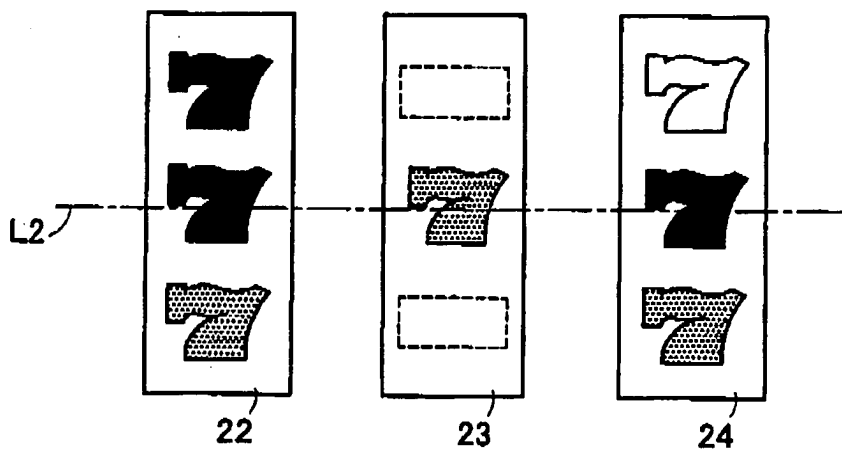


FIG.19A

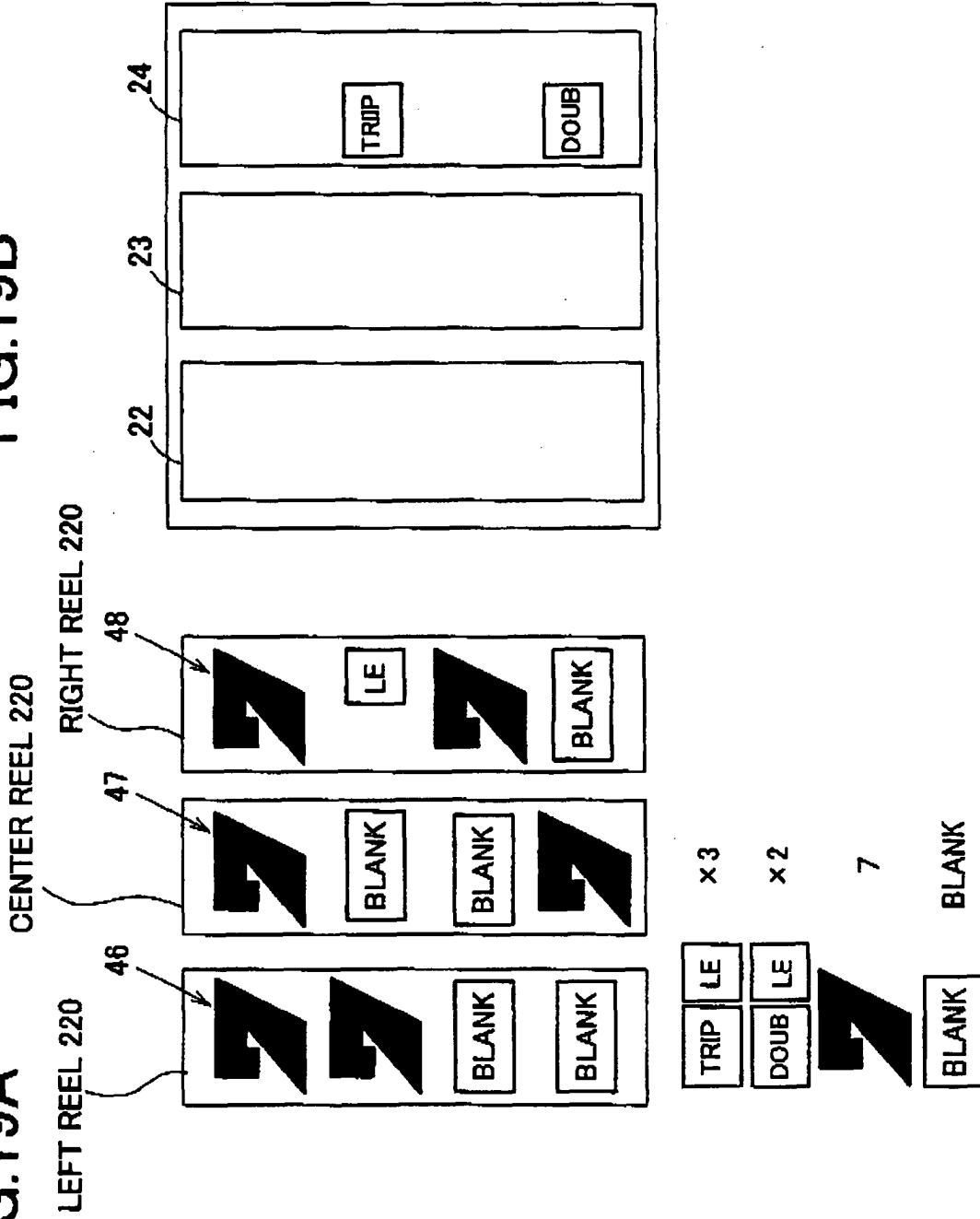


FIG.19B

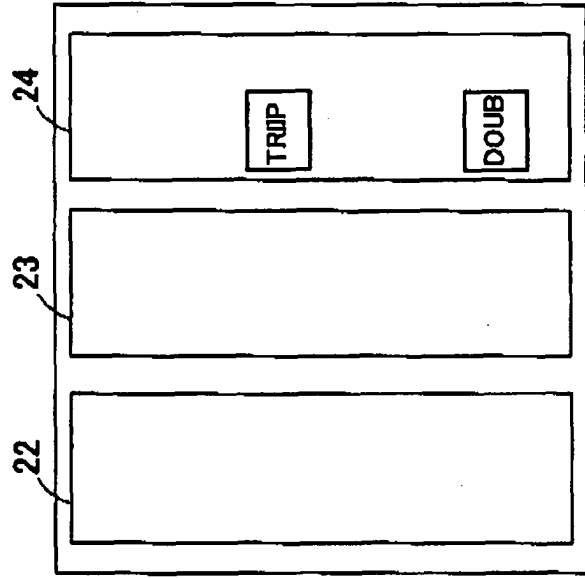


FIG.20

CONTENTS	RANDOM NUMBER VALUE RANGE	USE OF COMBINATION SYMBOL
7-7-TR	0~5	USE
7-7-DO	6~10	USE
7-7-7	11~26	NON-USE
LOSS OF WINNING COMBINATION	27~127	NON-USE

FIG.21

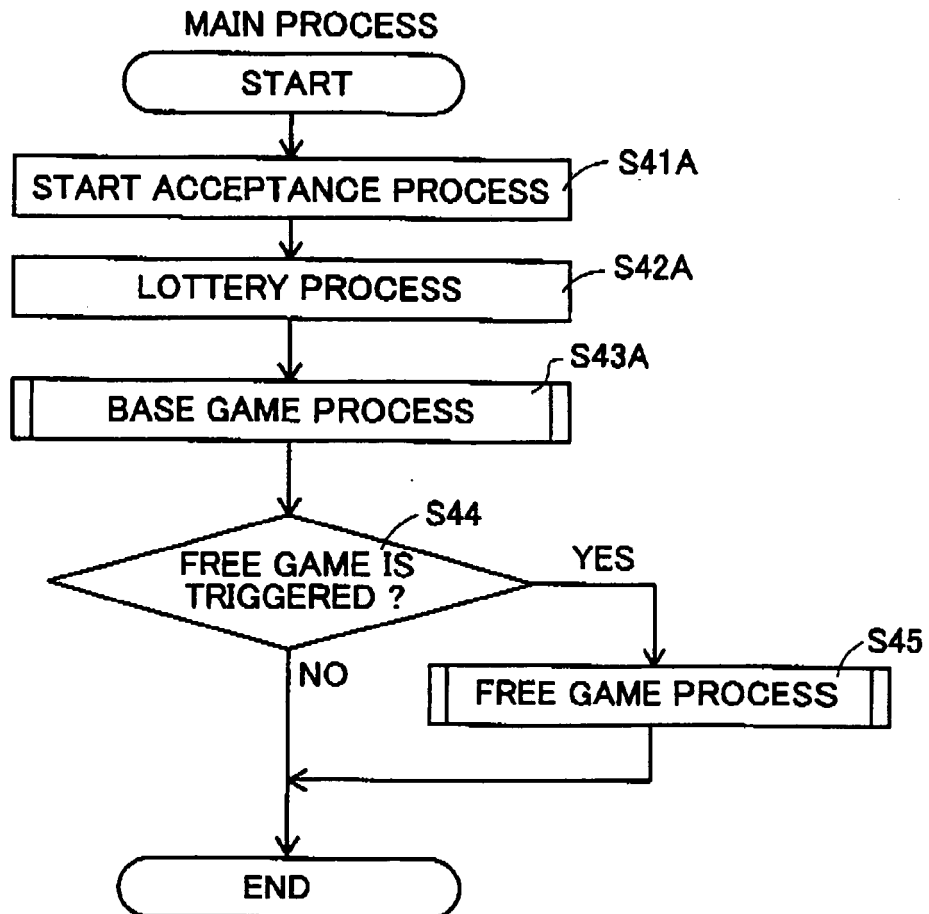


FIG.22

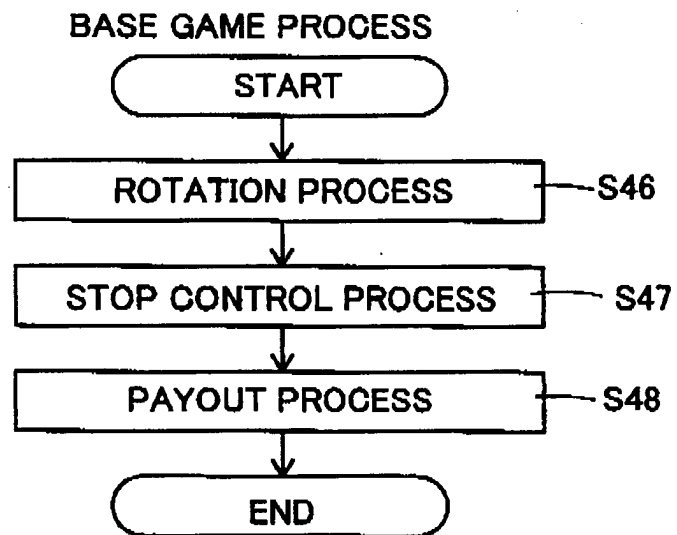


FIG.23

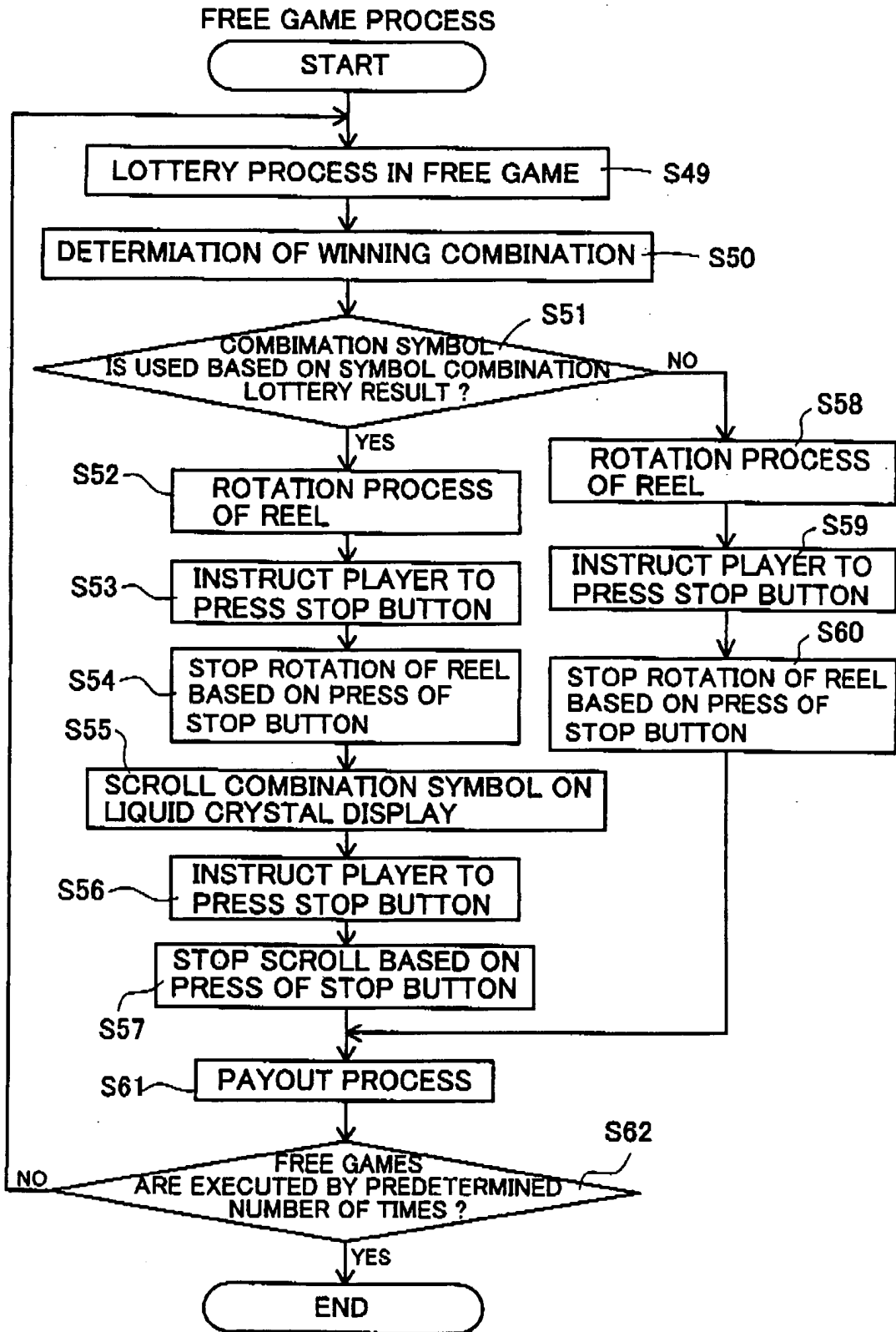


FIG.24

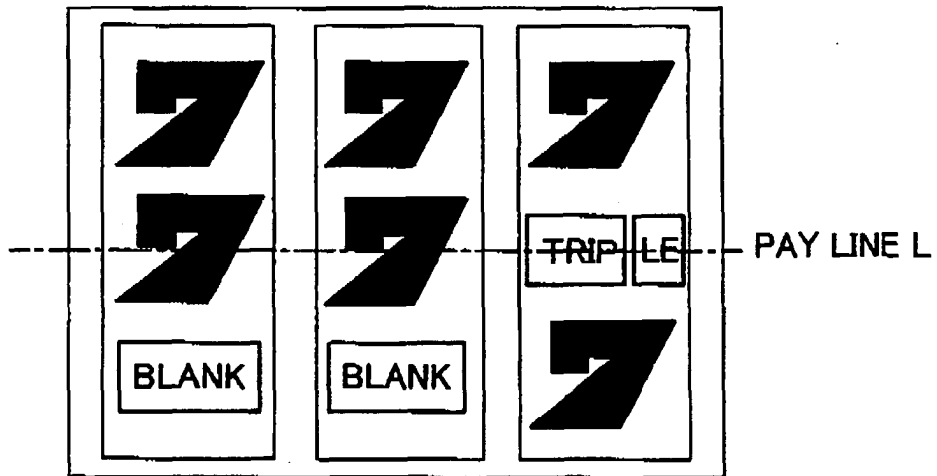


FIG.25

CODE NUMBER	RANDOM NUMBER VALUE
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

FIG.26

CODE NUMBER	RANDOM NUMBER VALUE
0	0
1	1~15
2	16~20
3	21~32
4	33~45
5	46~53
6	54~64
7	65~71
8	72~82
9	83~120
10	121~127

FIG.27

CODE NUMBER	41	42	43	44	45
0	BLANK	BLANK	TRIGGER	BLANK	BLANK
1	3BAR	3BAR	BLANK	3BAR	3BAR
2	CHERRY	CHERRY	CHERRY	CHERRY	CHERRY
3	2BAR	2BAR	2BAR	2BAR	2BAR
4	7	7	7	7	7
5	BAR	BAR	BAR	BAR	BAR
6	BLANK	BLANK	BLANK	BLANK	BLANK
7	3BAR	3BAR	3BAR	3BAR	3BAR
8	2BAR	2BAR	2BAR	2BAR	2BAR
9	7	7	7	7	7
10	BAR	BAR	BAR	BAR	BAR

FIG.28

CODE NUMBER	RANDOM NUMBER VALUE
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

FIG.29

CODE NUMBER	RANDOM NUMBER VALUE
0	0
1	1~15
2	16~20
3	21~32
4	33~45
5	46~53
6	54~64
7	65~71
8	72~82
9	83~102
10	103~127