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Yoshizawa(10) **Pub. No.: US 2010/0069139 A1**(43) **Pub. Date: Mar. 18, 2010**(54) **SLOT MACHINE CAPABLE OF DISPLAYING
SPECIAL PICTURE CONSISTING OF A
PLURALITY OF PICTURE PIECES AND
CONTROL METHOD THEREOF**(22) Filed: **Mar. 16, 2009****Related U.S. Application Data**(60) Provisional application No. 61/038,983, filed on Mar.
24, 2008.**Publication Classification**(51) **Int. Cl.**
A63F 9/24 (2006.01)(52) **U.S. Cl.** **463/20**(57) **ABSTRACT**

According to a slot machine of the present invention, display objects may be stop-displayed to a symbol display. Each of the display objects shows a picture piece for forming a predetermined picture. In a case where the picture pieces shown in the display objects stop-displayed to the symbol display form the predetermined picture, a predetermined profit different from a normal payout is offered.

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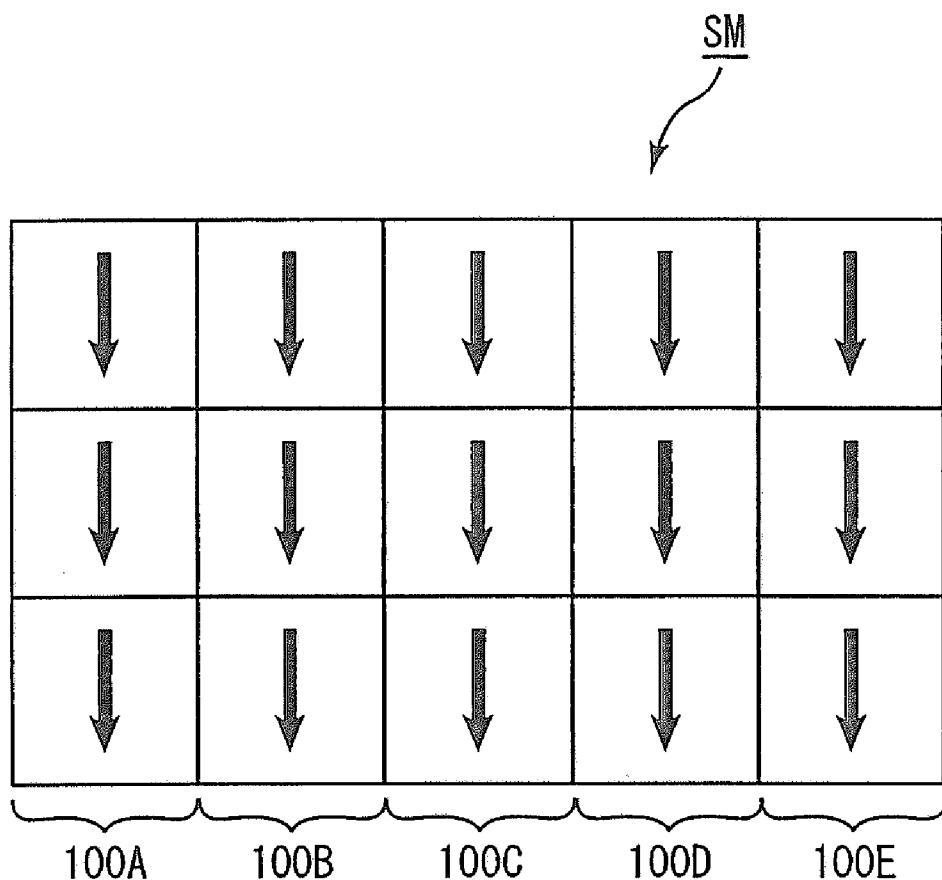
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WASHINGTON, DC 20005 (US)**(73) Assignee: **ARUZE CORP., Tokyo (JP)**(21) Appl. No.: **12/405,157**

Fig. 1A

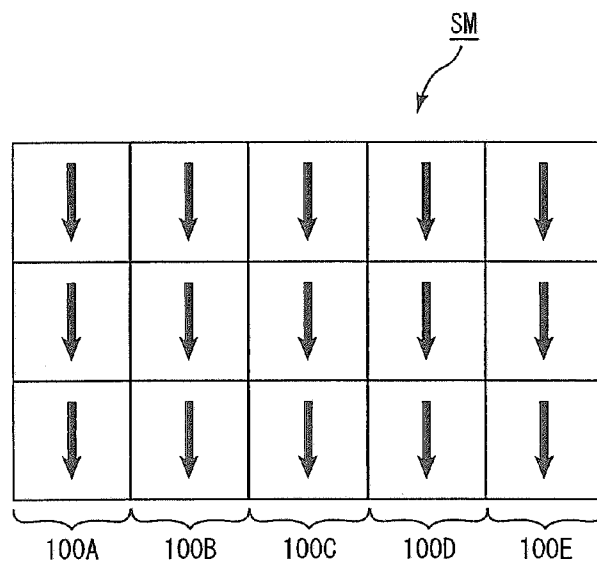


Fig. 1B

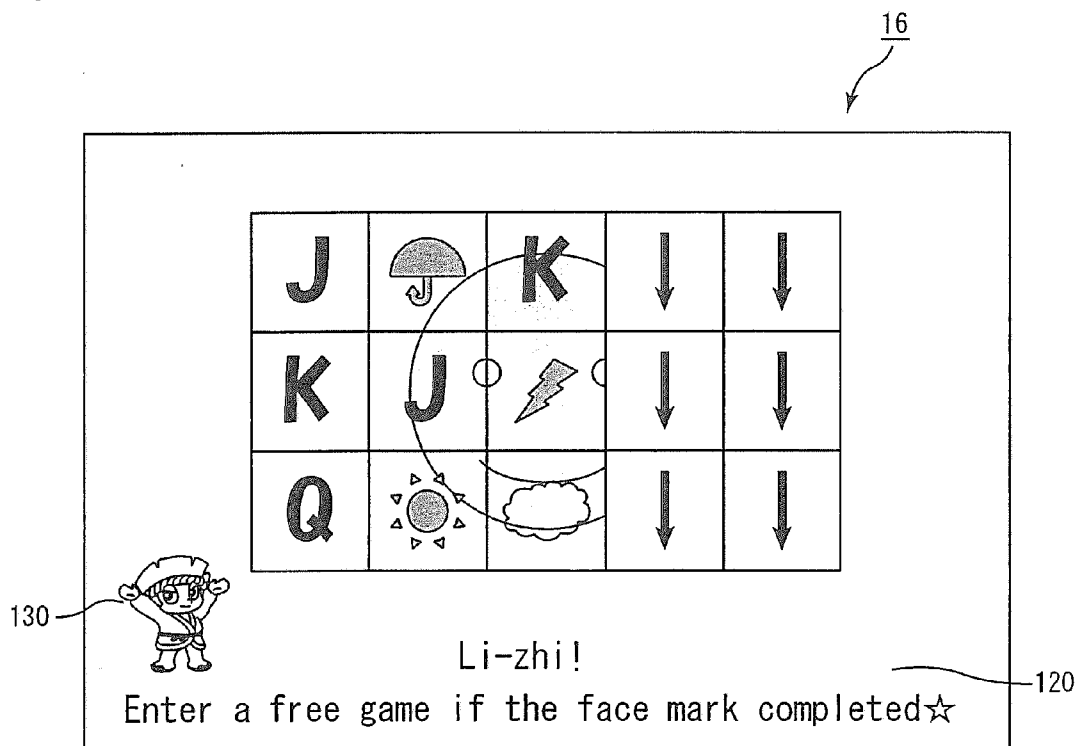


Fig. 1C

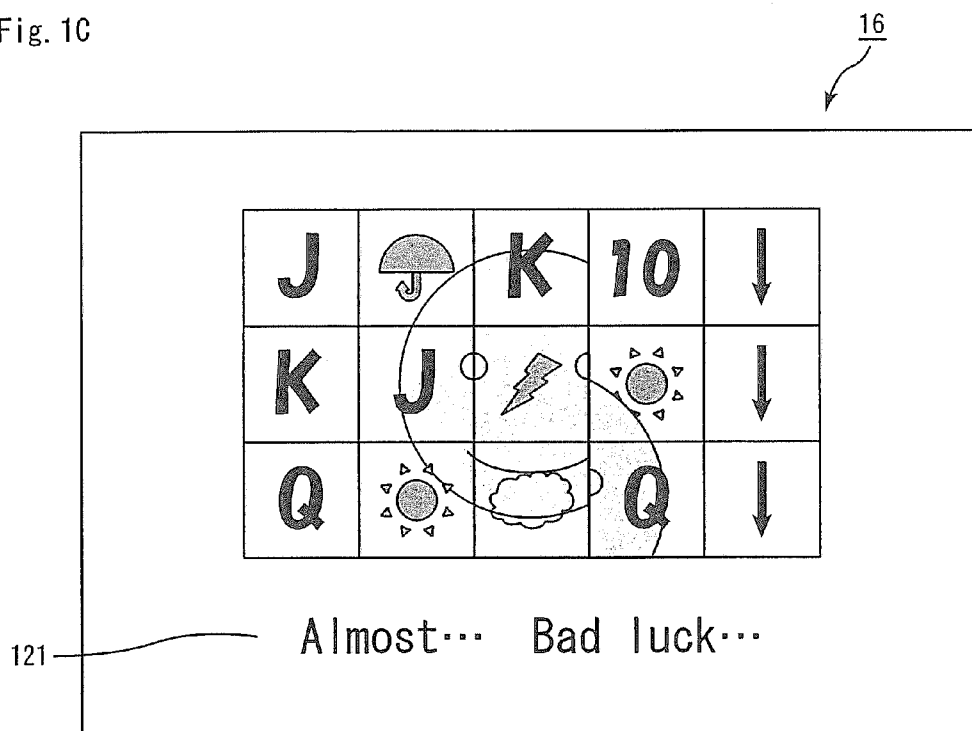


Fig. 1D

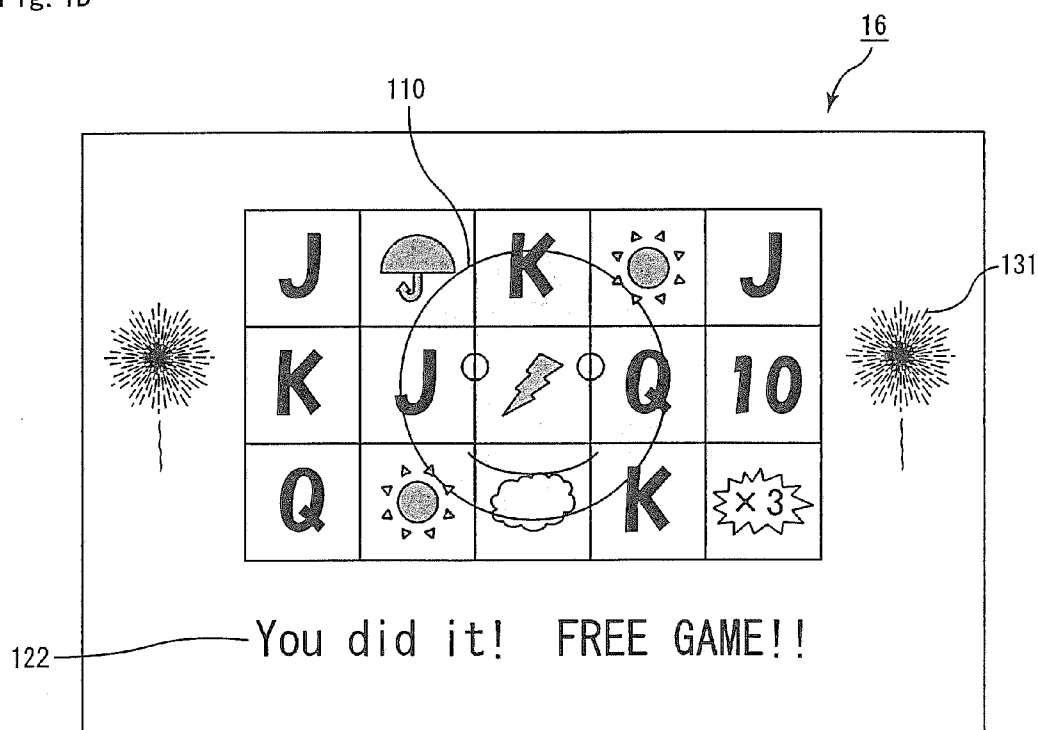


Fig. 1E

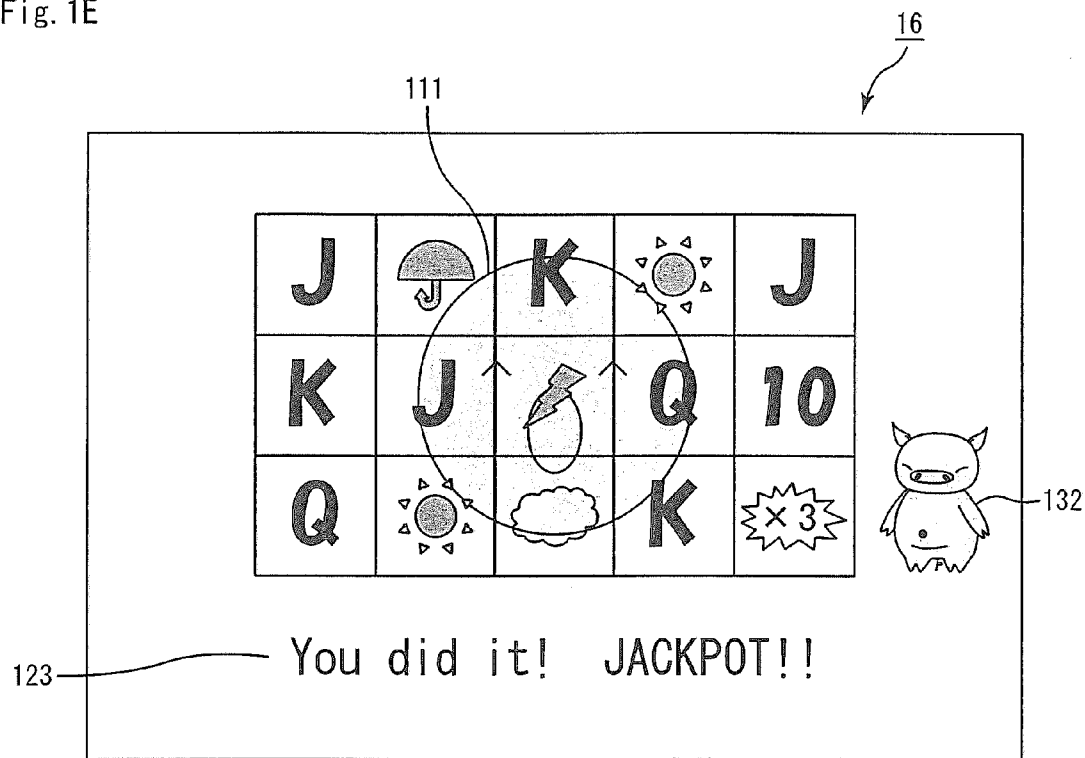


Fig. 1F

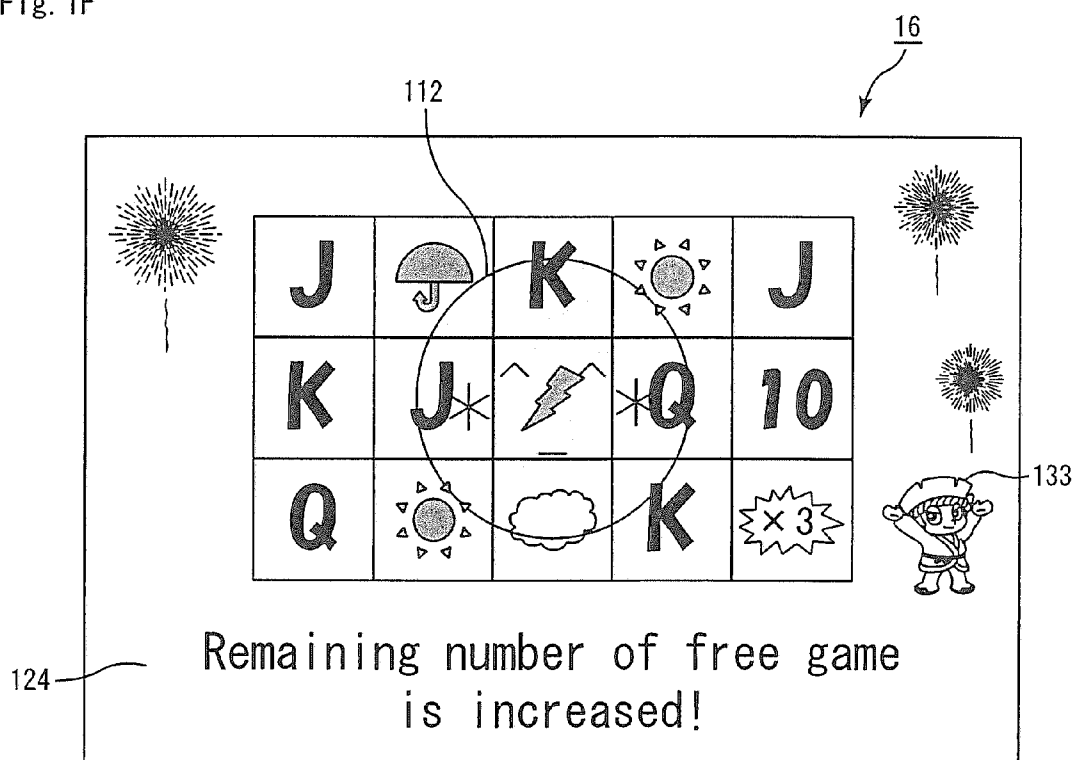


Fig. 2

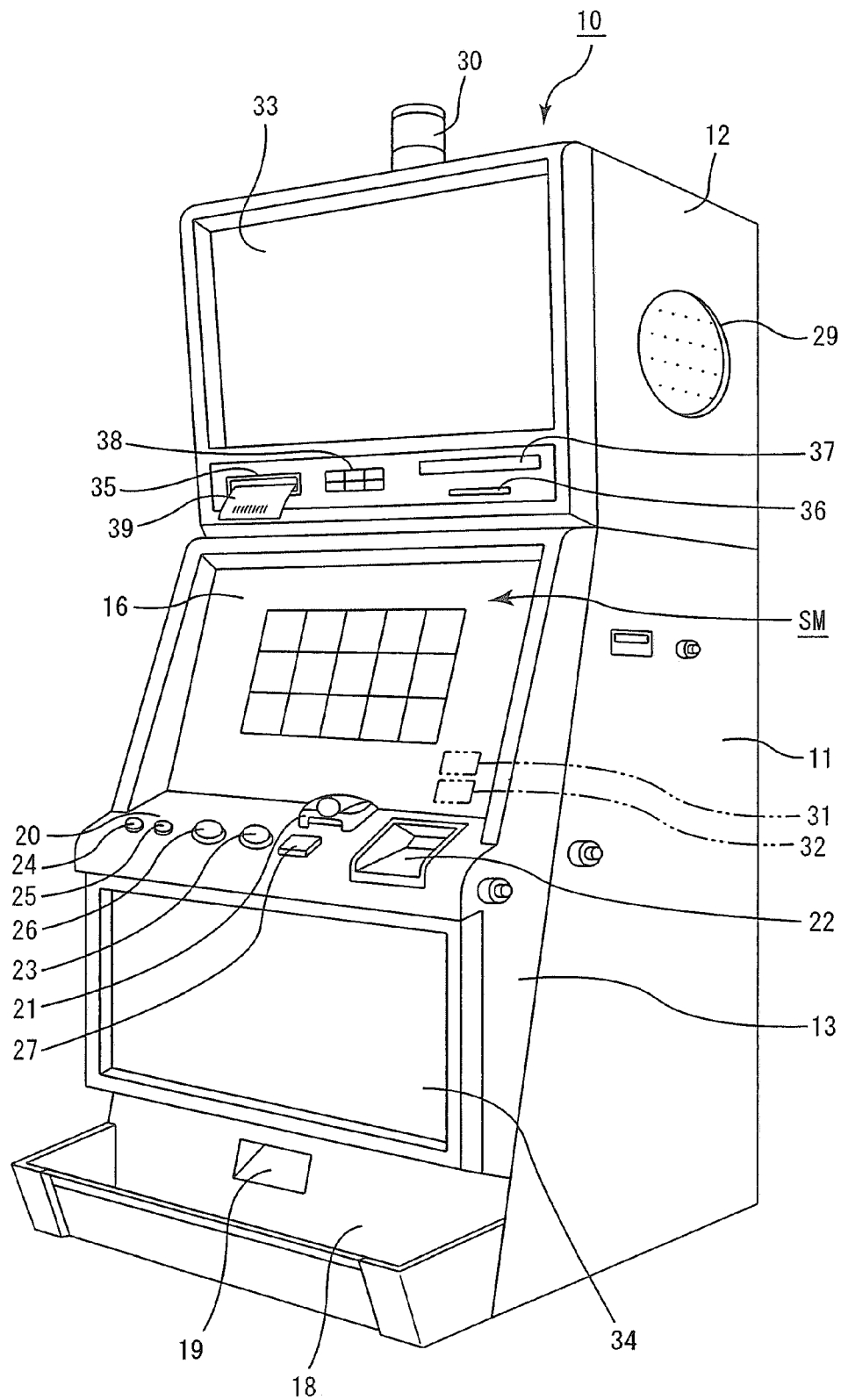


Fig. 3

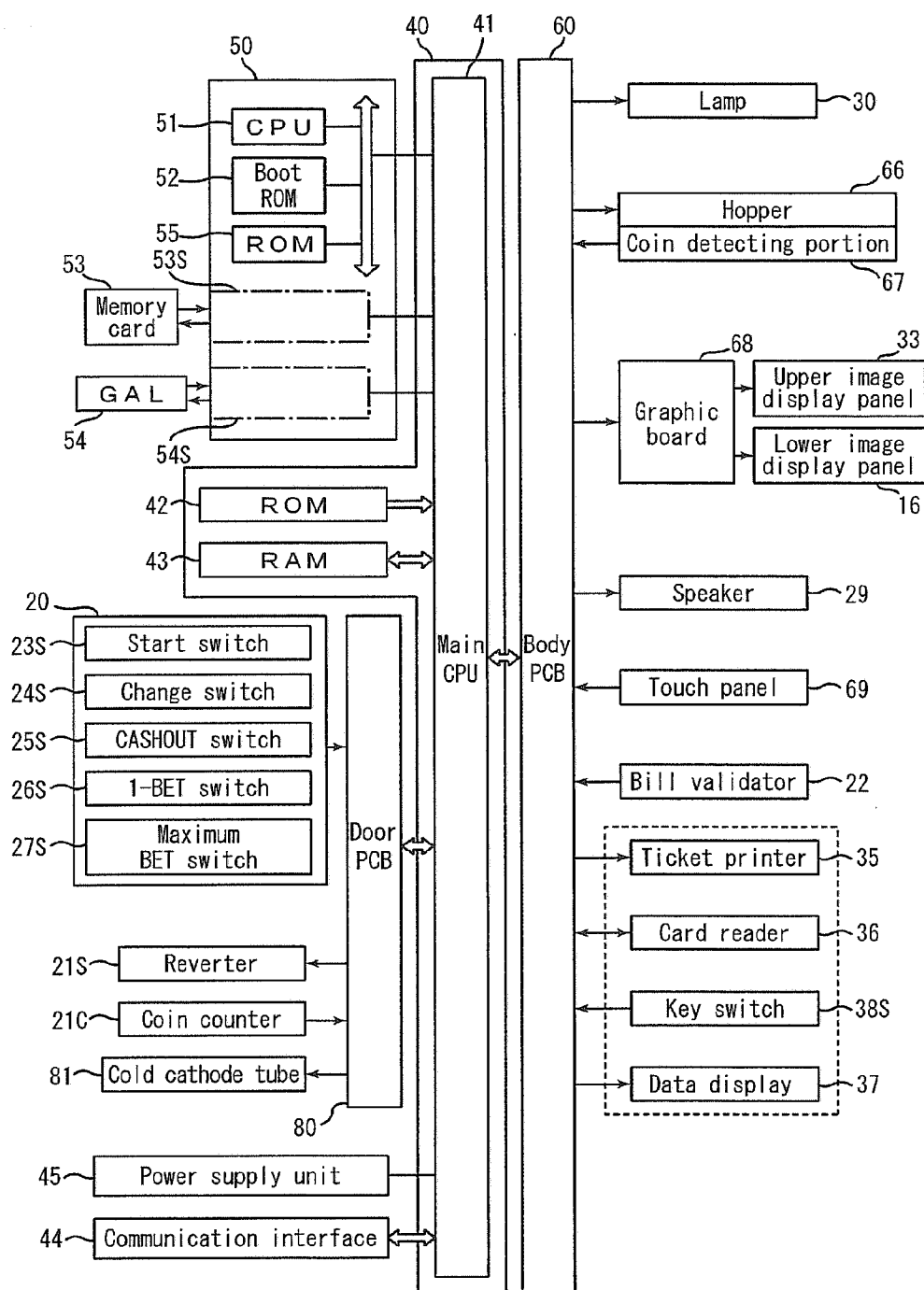


Fig. 4

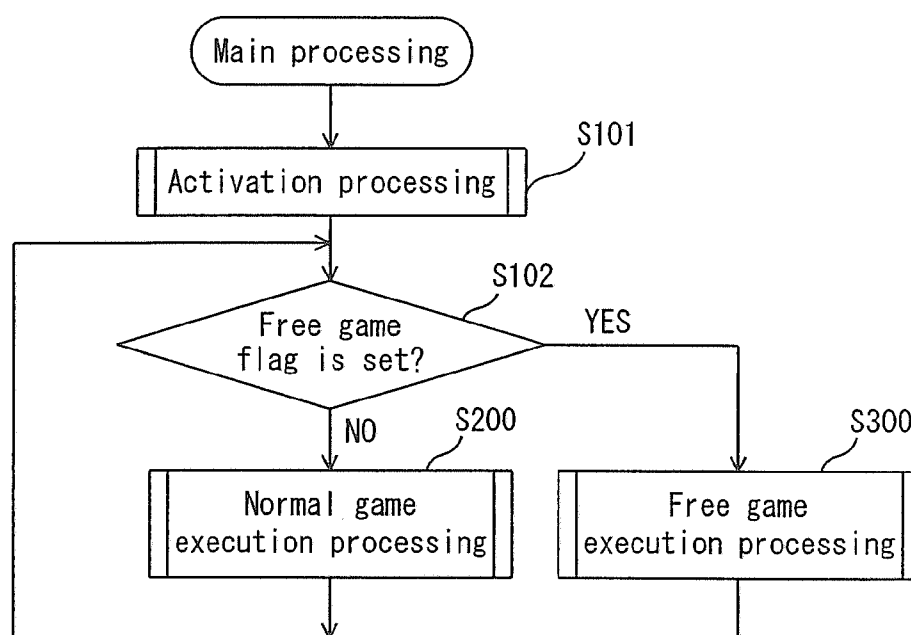


Fig. 5

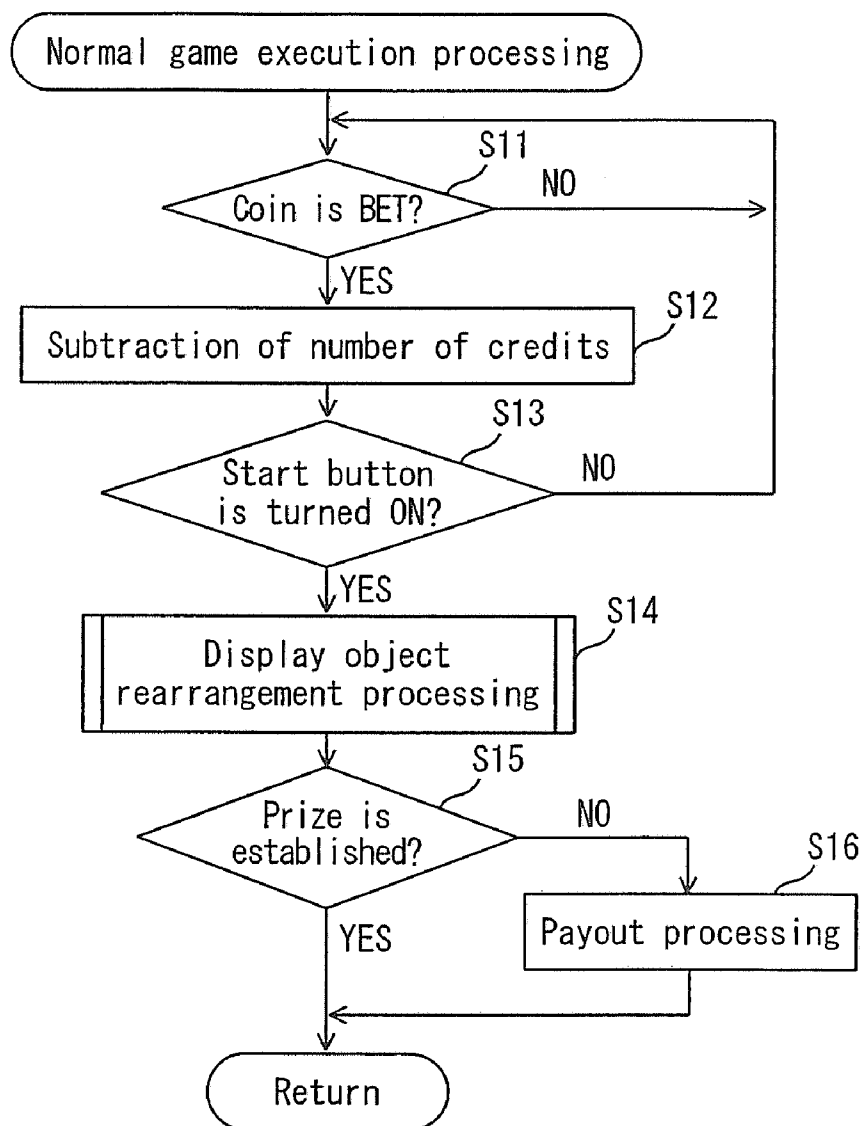


Fig. 6

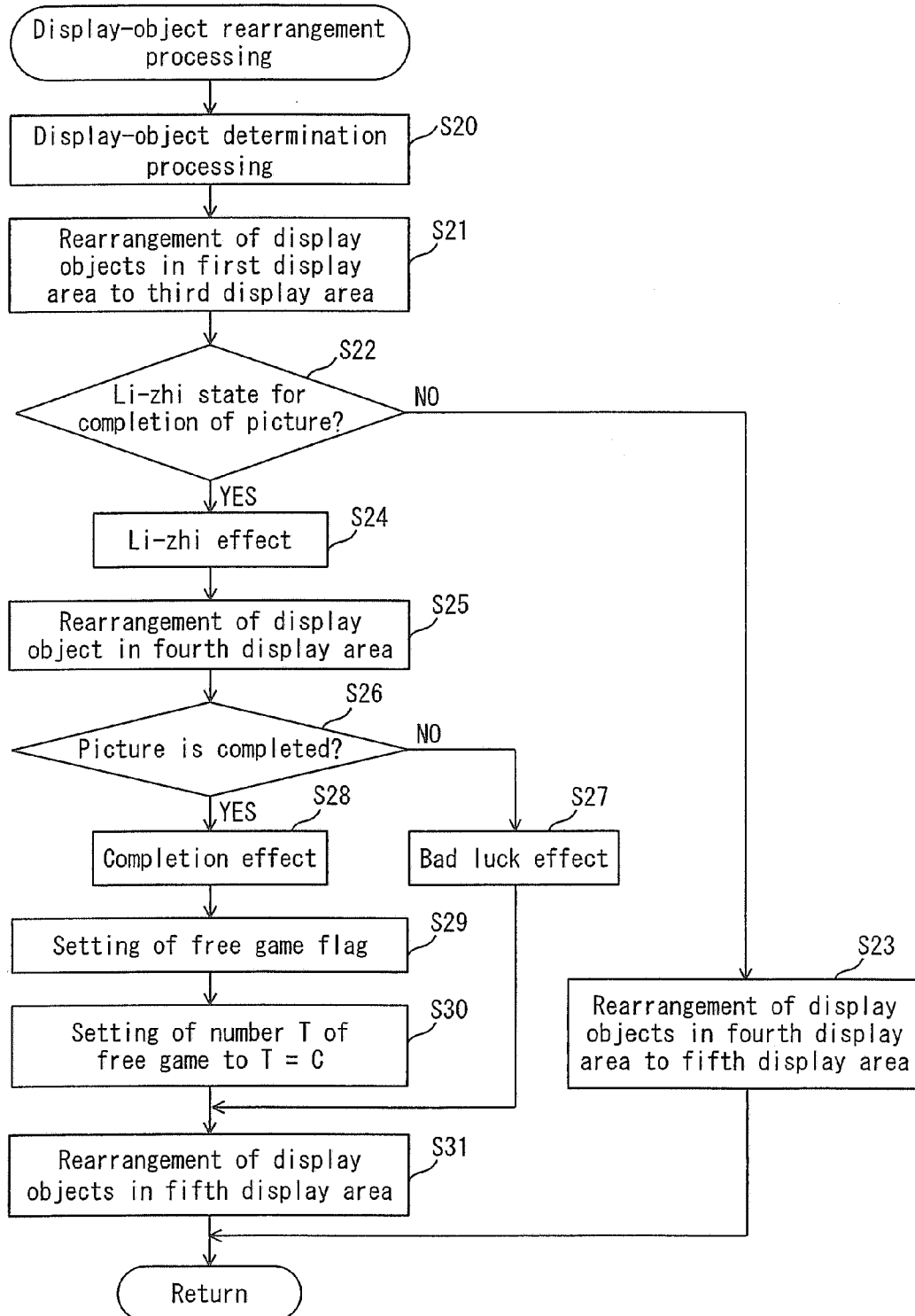


Fig. 7

Normal symbol	Number of rearranged symbols			
	2 symbols	3 symbols	4 symbols	5 or more symbols
10	2	4	6	$m \times (n-1)$ ($\times 1$)
J	3	6	9	
Q	30	60	90	
K	10	20	30	
UMBRELLA	5	10	15	
CLOUD	8	16	24	
THUNDER	15	30	45	
SUN	25	50	75	

$\times 1$ “m” represents the amount of payout when 2 symbols are rearranged.
“n” represents the number of rearranged symbols.

Fig. 8

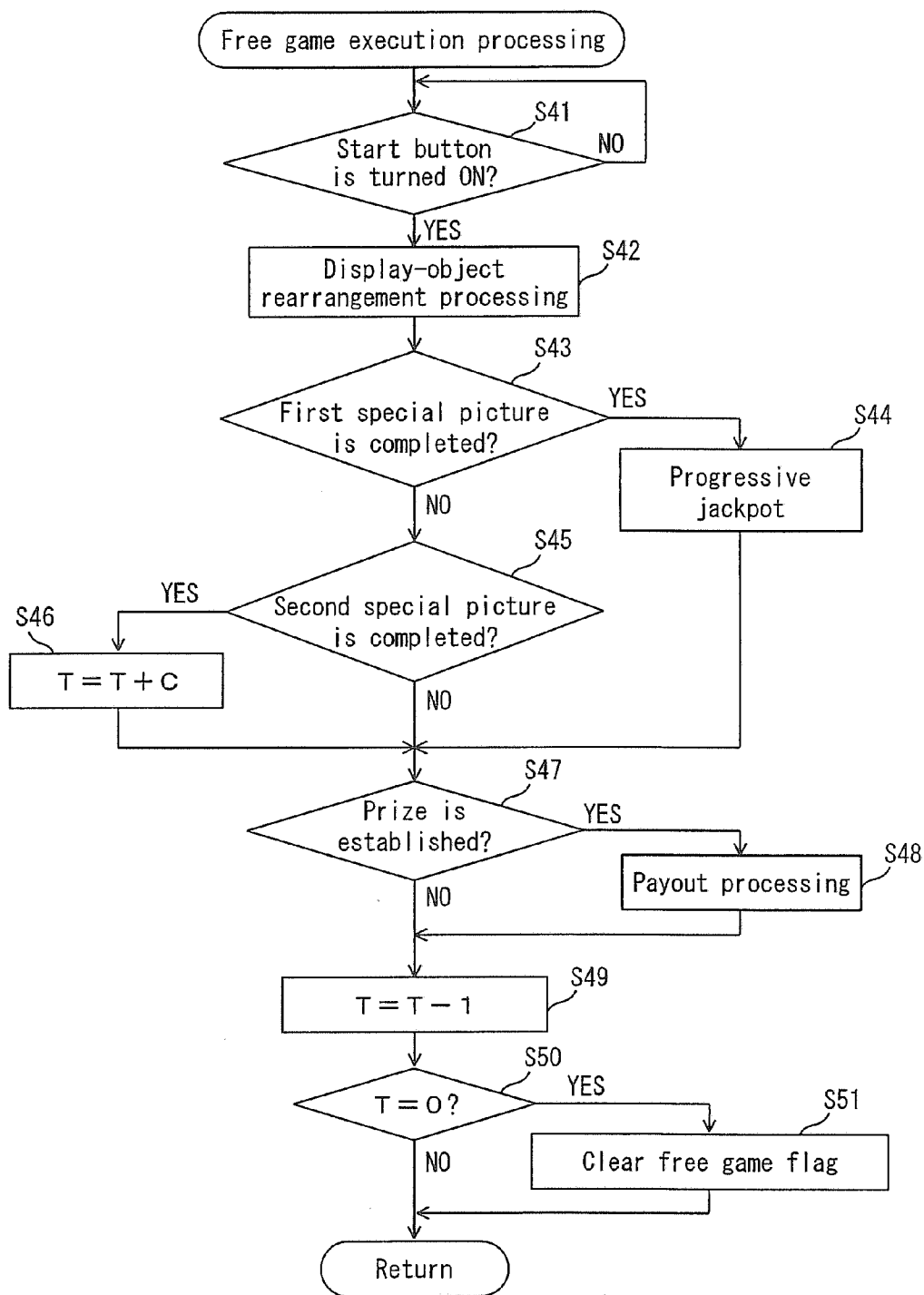


Fig. 9

[Activation processing]

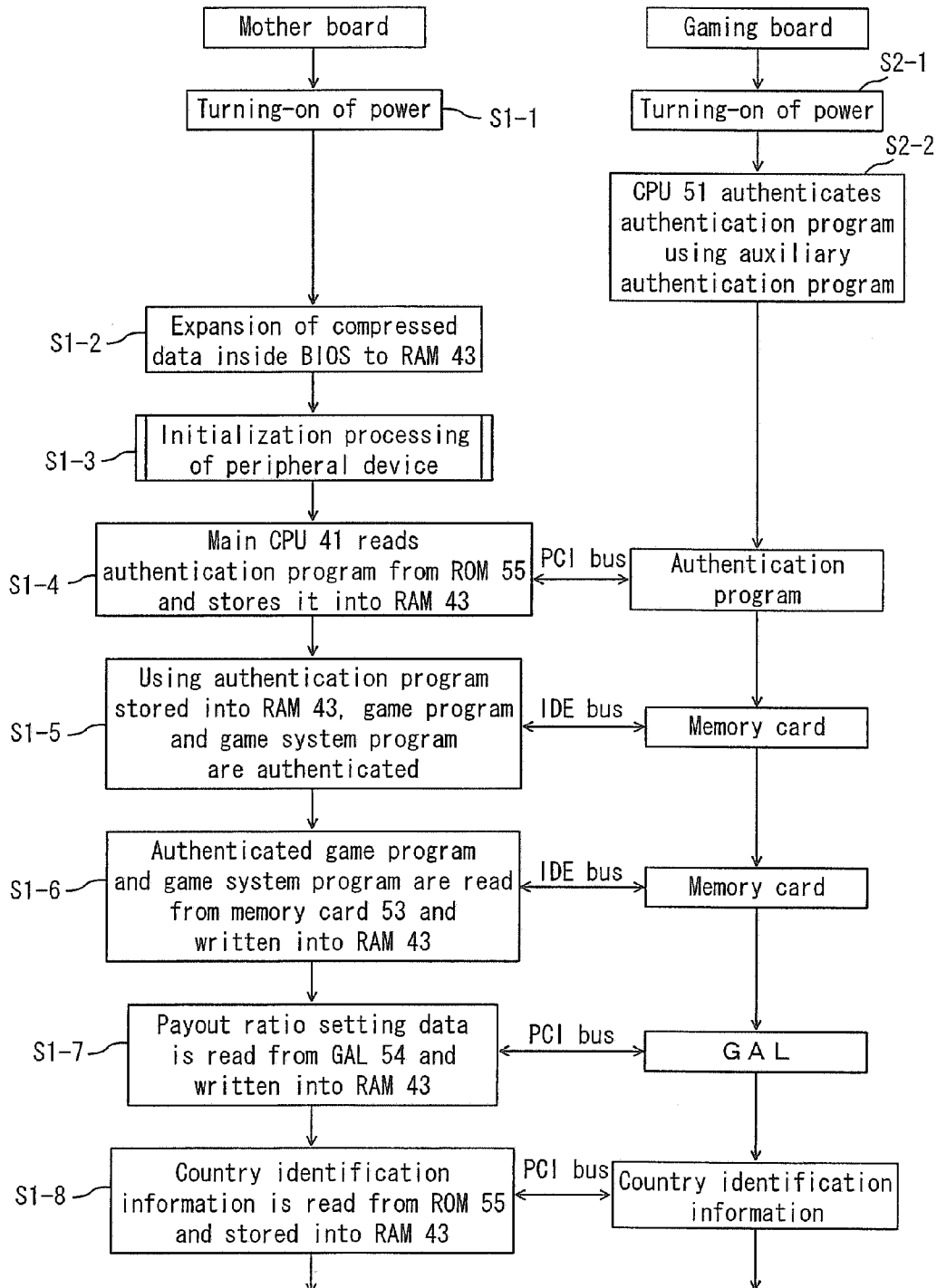


Fig. 10

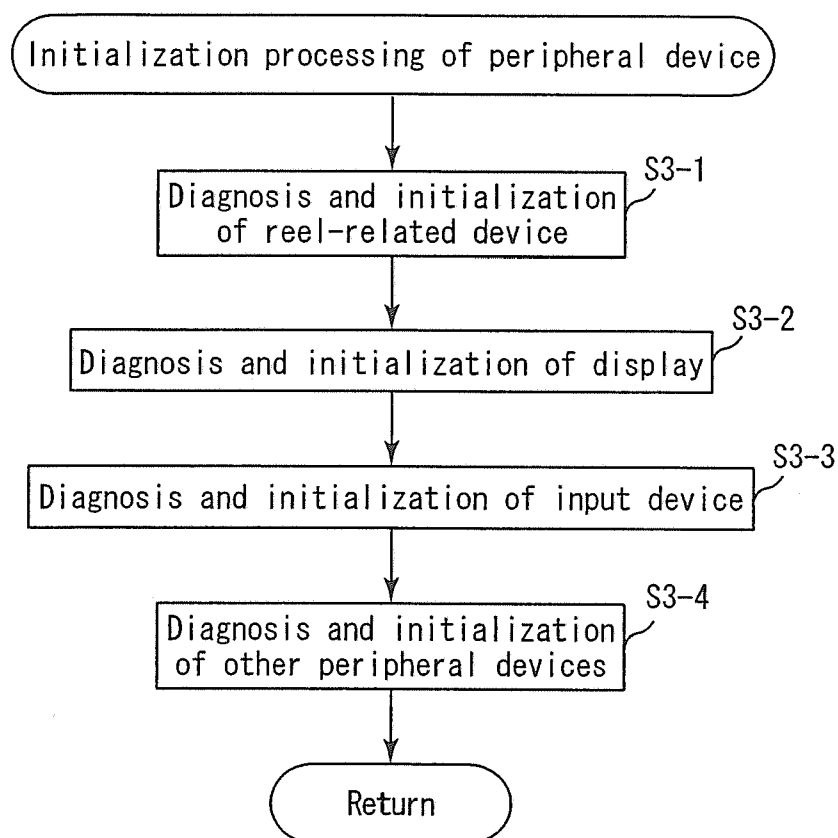


Fig. 11

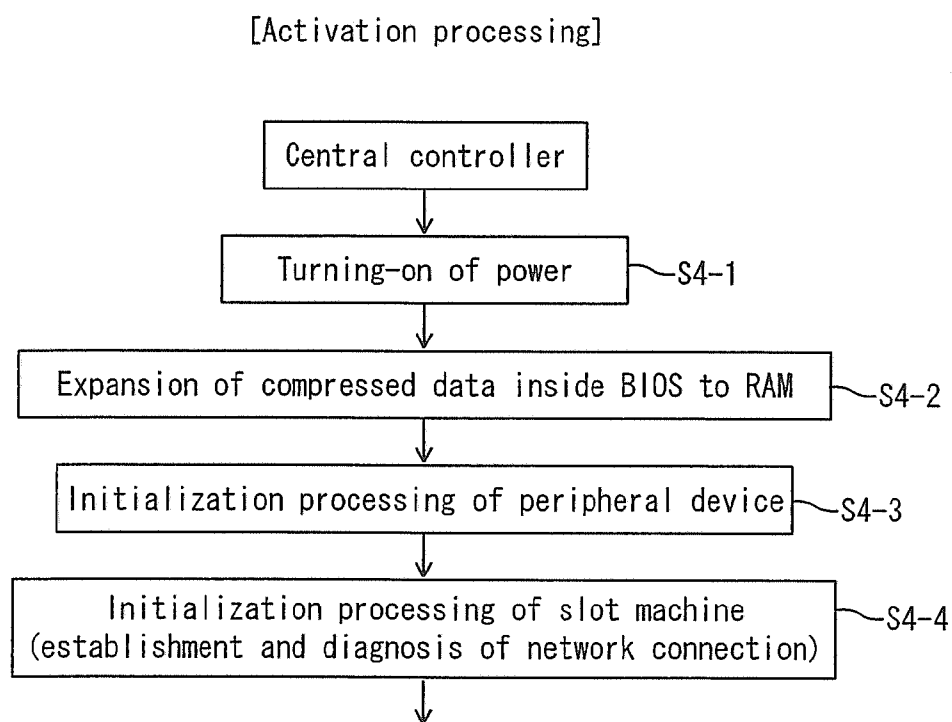
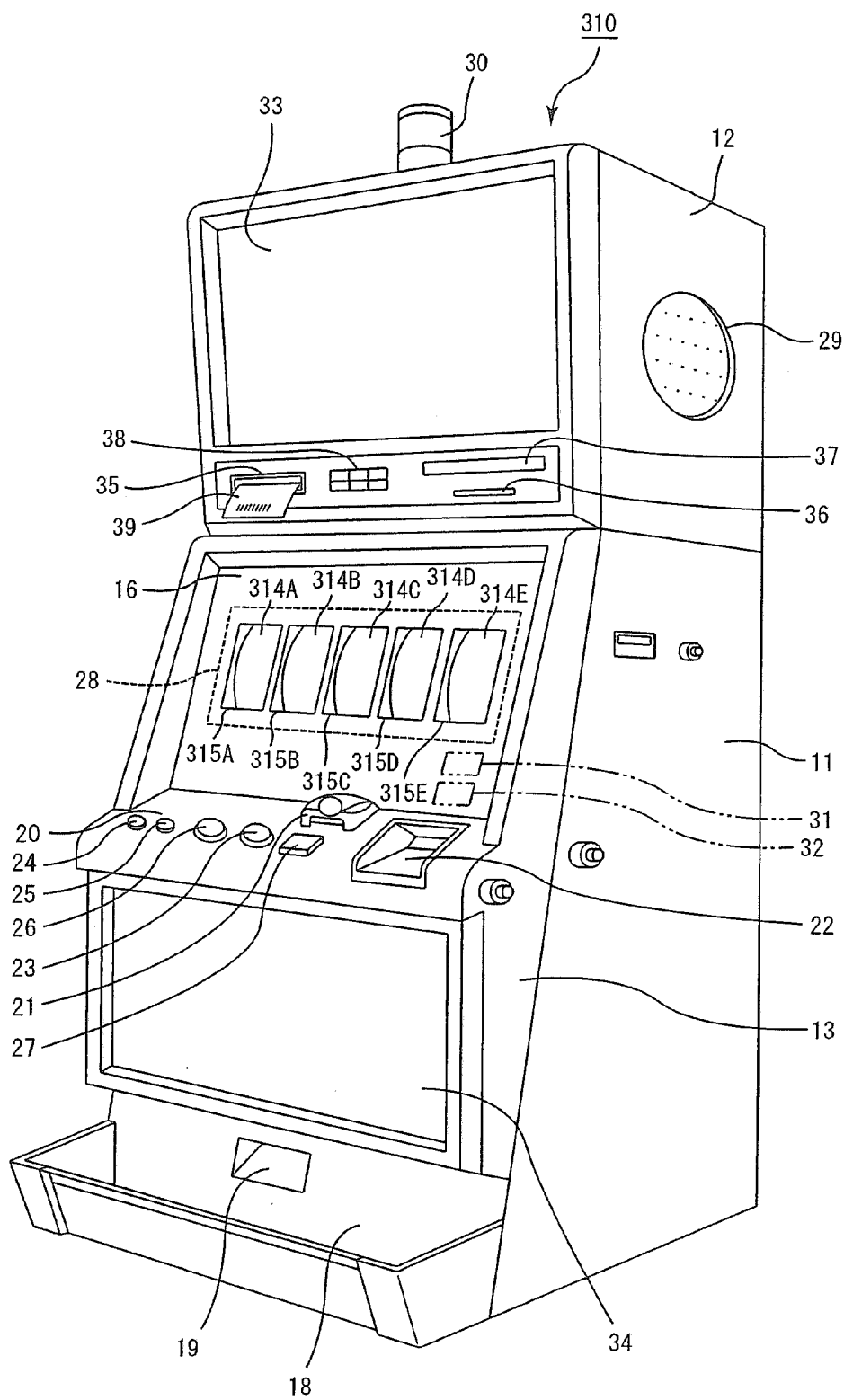


Fig. 12



SLOT MACHINE CAPABLE OF DISPLAYING SPECIAL PICTURE CONSISTING OF A PLURALITY OF PICTURE PIECES AND CONTROL METHOD THEREOF

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims benefit of priority based on US Provisional Patent Application No. 61/038,983 filed on Mar. 24, 2008. The contents of this application are incorporated herein by reference in their entirety.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a slot machine capable of displaying a special picture consisting of a plurality of picture pieces and a control method thereof.

[0004] 2. Discussion of the Background

[0005] In conventional slot machines, when a player inserts game media such as medals, coins or bills into an insertion slot of the slot machine and presses a spin button, then a plurality of symbols are scroll-displayed to a display portion provided on the front surface of a casing and, thereafter, the respective symbols are automatically stopped, as disclosed in U.S. Pat. Nos. 6,960,133, 6,012,983 and 6,093,102. In this case, when scroll-display of respective symbols starts by an input from the spin button, symbols are selected using random numbers, and the selected symbols are stop-displayed to the display portion. Then, when a combination of the stop-displayed symbols along a winning line is a predetermined winning combination (prize), a payout is conducted.

[0006] Further, among conventional slot machines, there are some slot machines which conduct two types of payouts which are a payout determined according to the combinations of symbols rearranged along winning lines and a payout determined according to the number of displayed scatter symbols, as disclosed in U.S. Pat. No. 6,604,999 and US 2002-0065124-A1. In such a slot machine which conducts payouts based on such scatter symbols, there is no relationship between payouts and positions at which the scatter symbols are displayed.

[0007] Further, in the conventional slot machines, there exists a slot machine offering a predetermined profit different from a normal payout to a player.

[0008] For example, there exists a slot machine that reserves a part of a consumed credit and conducts a payout in such a large amount (so-called "jackpot") as not to be paid out in the case of a normal winning, when a predetermined condition (for example, symbols being aligned in specific order) is satisfied.

[0009] Furthermore, there also exists a slot machine executing a game different from a basic game (in the present description, referred to as feature game, e.g. bonus game comparatively advantageous for the player). Examples of the feature game include a free game. The free game is a game that can be played without consuming game media. For example, a slot machine executing a free game as a secondary game in the case of establishment of a predetermined condition (symbols being aligned in a specific arrangement) in the basic game is disclosed in AU1972901-A1.

[0010] In such a slot machine that executes the feature game of this kind or generates a jackpot winning (slot machine offering a predetermined profit), the player normally

plays the game expecting for receiving a profit of the feature game or the jackpot (predetermined profit).

[0011] However, such a slot machine is generally configured to execute the feature game or to generate the jackpot winning in the case that the symbols are aligned in a predetermined arrangement or in the case that specific symbols in a predetermined number are displayed. Here, the condition for offering of the predetermined profit is comparatively similar to the condition for offering of a normal payout in many cases. Accordingly, there tends to be happened a case where it is visibly unclear to the player that a display of which symbols in which arrangement leads to the predetermined profit. Consequently, it becomes hard to make the player have an expectation for the predetermined profit, so that there has been a problem that the slot machine fails to fully attract an interest of the player in the predetermined profit.

[0012] In light of the aforementioned problem, the present invention has been devised, and an object of the present invention is to provide a slot machine capable of fully attracting an interest of a player in a predetermined profit different from a normal payout and a control method thereof.

[0013] The contents of U.S. Pat. No. 6,960,133, U.S. Pat. No. 6,012,983, U.S. Pat. No. 6,093,102, U.S. Pat. No. 6,604,999, U.S. 2002-0065124-A1, and AU1972901-A1 are incorporated herein by reference in their entirety.

SUMMARY OF THE INVENTION

[0014] The present invention provides a slot machine having the following configuration.

[0015] That is, the slot machine comprises: a symbol display capable of variably displaying a display object showing a normal symbol and a picture piece for forming a predetermined picture; and a controller. The controller is programmed to execute processing of (A) stop-displaying at least a plurality of the display objects after variably displaying the plurality of the display objects, to the symbol display, (B) offering a normal payout corresponding to the normal symbols shown by the display objects stop-displayed in the processing (A) or a combination of the normal symbols, and (C) offering a predetermined profit different from the normal payout, as triggered by formation of the predetermined picture by the picture pieces shown by the display objects stop-displayed in the processing (A).

[0016] According to the slot machine, the display object may be stop-displayed to the symbol display. The display object shows a picture piece for forming a predetermined picture. In the case that the picture pieces shown by the display objects stop-displayed to the symbol display form the predetermined picture, a predetermined profit (for example, a feature game or a payout of a coin according to a jackpot) different from a normal payout is offered. Namely, a condition for offering of the predetermined profit is a display of the predetermined picture to the symbol display (in the present description, also referred to as "completion of a predetermined picture"), which is different from a mere arrangement or a mere number of the symbols and is visibly very clear to the player. Accordingly, it is easier to have the player have an expectation for the completion of such a predetermined picture, and player's interest in the predetermined profit can be fully attracted.

[0017] Further, the slot machine of the present invention preferably has the following configuration.

[0018] That is, the processing (C) is processing of offering the predetermined profit as triggered by formation of the

predetermined picture by the picture pieces shown by the display objects stop-displayed in a predetermined display area in the symbol display, out of the display objects stop-displayed in the processing (A).

[0019] According to the slot machine, the predetermined picture as a trigger for offering the predetermined profit is displayed in the predetermined display area in the symbol display. Accordingly, the player's attention can be concentrated on such a predetermined display area, so that the player can be absorbed in the game.

[0020] Further, the slot machine of the present invention preferably has the following configuration.

[0021] That is, the slot machine comprises a memory capable of storing effect data for conducting an effect. The predetermined display area includes N units (N being an integer equal to or more than 2) of individual display areas. The processing (A) includes processing of stop-displaying the display object in each of the individual display areas in succession. The controller is further programmed to execute processing of (D) conducting the effect based on the effect data stored in the memory, if the picture pieces shown by the stop-displayed display objects form a picture when the display objects have been stop-displayed in (N-1) units of the individual display areas, the picture being the predetermined picture to be completed when the picture piece for forming the predetermined picture is stop-displayed in the last one of the individual display areas.

[0022] According to the slot machine, the predetermined display area includes N units (N being an integer equal to or more than 2) of individual display areas and the display objects are stop-displayed in respective display areas in succession. When the display objects are stop-displayed in (N-1) units of the display areas, if the picture pieces shown in the stop-displayed display objects form the predetermined picture to be completed when the picture piece for forming the predetermined picture is stop-displayed in the last one of the individual display areas (namely, in the case of a li-zhi state for completion of the predetermined picture), the effect is conducted based on the effect data stored in the memory.

[0023] Accordingly, it is possible to increase the player's expectation for the completion of the predetermined picture, as well as evoking the player's attention on the predetermined picture.

[0024] The present invention provides a slot machine having the following configuration.

[0025] That is, the slot machine comprises: a symbol display capable of variably displaying a display object showing a normal symbol and a picture piece for forming a predetermined picture; and a controller. The controller is programmed to execute processing of (A) executing a normal game after stop-displaying at least a plurality of the display objects subsequent to a variable display of the plurality of the display objects to the symbol display, the normal game being a game offering a normal payout corresponding to the normal symbols shown by the stop-displayed display objects or a combination of the normal symbols; and (B) executing a feature game different from the normal game, as triggered by formation of the predetermined picture by the picture pieces shown by the display objects stop-displayed to the symbol display, in the normal game executed in the processing (A).

[0026] According to the slot machine, the display objects may be stop-displayed to the symbol display. Each of the display objects shows a picture piece for forming a predetermined picture. In the case that the picture pieces shown in the

display objects, which are stop-displayed to the symbol display, form the predetermined picture, the feature game different from the normal game (for example, a free game) is executed. Namely, a condition for generation of the feature game is a display of a predetermined picture, which is different from a mere arrangement or a mere number of the symbols and is visibly very clear to the player. Accordingly, it is easier to have the player have an expectation for the completion of such a predetermined picture, and player's interest in the feature game can be fully attracted.

[0027] Further, the slot machine of the present invention preferably has the following configuration.

[0028] That is, the processing (B) includes processing of (B-1) stop-displaying at least the plurality of the display objects after variably displaying the plurality of the display objects to the symbol display in the feature game, and (B-2) offering a predetermined profit different from the payout corresponding to the normal symbols shown by the display objects or the combination of the normal symbols, as triggered by formation of the predetermined picture by the picture pieces shown by the display objects stop-displayed in the processing (B-1).

[0029] According to the slot machine, as triggered by the formation of the predetermined picture by the picture pieces shown in the display objects stop-displayed in the feature game, the predetermined profit different from the payout corresponding to the normal symbols shown in the display objects or the combination thereof is offered. For example, a feature game different from the above-described feature game may be conducted. Further, the coin according to the jackpot may be paid out. Accordingly, it becomes possible to have the player have an expectation for the completion of the predetermined picture in the feature game, so that the player's interest in the feature game can be fully attracted. Moreover, it becomes possible to significantly increase the player's interest in the completion of the predetermined picture in the normal game, so that the player can be absorbed in the game.

[0030] Further, the present invention provides a control method of a slot machine, the control method having a following configuration.

[0031] That is, the control method of a slot machine comprises steps of: (A) stop-displaying at least a plurality of display objects each showing a normal symbol and a picture piece for forming a predetermined picture, to a symbol display; (B) offering a normal payout corresponding to the normal symbols shown by the display objects stop-displayed in the step (A) or a combination of the normal symbols; and (C) offering a predetermined profit different from the normal payout, as triggered by formation of the predetermined picture by the picture pieces shown by the display objects stop-displayed in the step (A).

[0032] According to the control method of the slot machine, the display object may be stop-displayed to the symbol display. The display object shows a picture piece for forming a predetermined picture. In the case that the picture pieces shown by the display objects stop-displayed to the symbol display form the predetermined picture, a predetermined profit (for example, a feature game or a payout of a coin according to a jackpot) different from a normal payout is offered. Namely, a condition for offering of the predetermined profit is a display of the predetermined picture to the symbol display, which is different from a mere arrangement or a mere number of the symbols and is visibly very clear to the player. Accordingly, it is easier to have the player have an

expectation for the completion of such a predetermined picture, and player's interest in the predetermined profit can be fully attracted.

[0033] Further, the present invention provides a control method of a slot machine, the control method having a following configuration.

[0034] That is the control method of a slot machine comprises steps of: (A) executing a normal game after stop-displaying at least a plurality of display objects each showing a normal symbol and a picture piece for forming a predetermined picture subsequent to a variable display of the plurality of display objects to a symbol display, the normal game being a game offering a normal payout corresponding to the normal symbols shown by the stop-displayed display objects or a combination of the normal symbols; and (B) executing a feature game different from the normal game, as triggered by formation of the predetermined picture by the picture pieces shown by the display objects stop-displayed to the symbol display, in the normal game executed in the step (A).

[0035] According to the control method of the slot machine, the display objects may be stop-displayed to the symbol display. Each of the display objects shows a picture piece for forming a predetermined picture. In the case that the picture pieces shown in the display objects, which are stop-displayed to the symbol display, form the predetermined picture, the feature game different from the normal game (for example, a free game) is executed. Namely, a condition for generation of the feature game is a display of a predetermined picture, which is different from a mere arrangement or a mere number of the symbols and is visibly very clear to the player. Accordingly, it is easier to have the player have an expectation for the completion of such a predetermined picture, and player's interest in the feature game can be fully attracted.

BRIEF DESCRIPTIONS OF DRAWINGS

[0036] FIG. 1A is a view illustrating an exemplary symbol matrix.

[0037] FIG. 1B is a view illustrating an exemplary image to be displayed to a lower image display panel.

[0038] FIG. 1C is another view illustrating an exemplary image to be displayed to a lower image display panel.

[0039] FIG. 1D is another view illustrating an exemplary image to be displayed to a lower image display panel.

[0040] FIG. 1E is another view illustrating an exemplary image to be displayed to a lower image display panel.

[0041] FIG. 1F is another view illustrating an exemplary image to be displayed to a lower image display panel.

[0042] FIG. 2 is a perspective view illustrating the external appearance of a slot machine.

[0043] FIG. 3 is a block diagram illustrating an internal configuration of the slot machine illustrated in FIG. 2.

[0044] FIG. 4 is a flowchart illustrating main processing executed in a slot machine 10.

[0045] FIG. 5 is a flowchart illustrating a subroutine of normal game execution processing.

[0046] FIG. 6 is a flowchart illustrating a subroutine of display-object rearrangement processing.

[0047] FIG. 7 is a view illustrating a relation among a type and a number of rearranged normal symbols and a number of coin-outs.

[0048] FIG. 8 is a flowchart illustrating a subroutine of free game execution processing.

[0049] FIG. 9 is a flowchart illustrating a procedure of activation processing.

[0050] FIG. 10 is a view illustrating peripheral device initialization processing.

[0051] FIG. 11 is a flowchart illustrating a subroutine of activation processing executed by a central controller.

[0052] FIG. 12 is a perspective view illustrating an external appearance of a slot machine according to another embodiment.

DESCRIPTION OF THE EMBODIMENTS

[0053] A general description of a present embodiment will be given by using FIG. 1A to FIG. 1F.

[0054] FIG. 1A is a view illustrating an exemplary symbol matrix.

[0055] FIGS. 1B to 1F are views each illustrating an exemplary image to be displayed to a lower image display panel.

[0056] A symbol matrix SM illustrated in FIG. 1A is displayed to a lower image display panel 16 (a symbol display of the present invention) provided in a slot machine 10 (see FIG. 2). The symbol matrix SM is capable of rearranging a total of 15 display objects in three rows and five columns therein. The symbol matrix SM includes a first display area 100A, a second display area 100B, a third display area 100C, fourth display area 100D, and a fifth display area 100E.

[0057] Further, hereinafter, three rows included in the symbol matrix SM are also referred to simply as "upper row", "middle row", and "lower row".

[0058] When a start button 23 (see FIG. 2) provided in the slot machine 10 is pressed by a player, scrolling of the display objects is started in the symbol matrix SM as illustrated in FIG. 1A. Then, the display objects are rearranged in order of the first display area 100A, the second display area 100B, the third display area 100C, the fourth display area 100D, and the fifth display area 100E.

[0059] In the present embodiment, three types of the display objects are provided. Namely, a first display object shows the normal symbol. A second display object shows the normal symbol and the picture piece. A third display object shows an odds symbol.

[0060] An example illustrated in FIG. 1B shows a state that three normal symbols are rearranged in the first display area 100A and six special symbols are rearranged in the second display area 100B to the third display area 100C.

[0061] There are eight types of the normal symbol, that is, "10", "J", "Q", "K", "UMBRELLA", "CLOUD", "THUNDER", and "SUN". All the normal symbols comprise so-called scatter symbols, and a payout is offered based on a type and a number of the rearranged normal symbols (see FIG. 7). As illustrated in FIG. 7, a number of coin-outs in the case of a BET of a single coin (hereinafter, also referred to as odds) is determined for each type and each number of the normal symbols.

[0062] In the case that the odds symbol ("×3") (see FIG. 1D) is rearranged, the odds are increased threefold.

[0063] The picture piece forms the predetermined picture. In the case that the display objects showing the picture pieces are rearranged in appropriate positions in the symbol matrix SM, the predetermined picture is displayed.

[0064] FIG. 1B illustrates a li-zhi state for completion of the predetermined picture (picture 110, see FIG. 1D). Namely, in the case that appropriate display objects are rearranged in the fourth display area 100D, the predetermined picture is displayed by the display objects rearranged in the second display area 100B to the fourth display area 100D. The display of the predetermined picture by the display objects

rearranged in the second display area 100B to the fourth display area 100D is also referred to as “The predetermined picture is completed.” in the present description.

[0065] In FIG. 1B, as triggered by the li-zhi state for completion of the picture 110, a li-zhi text image 120 showing a text of “Li-zhi! Enter a free game if the face mark completed ☆” is displayed to the lower image display panel 16.

[0066] Further, a li-zhi effect image 130 is displayed to the lower image display panel 16.

[0067] Then, the display objects are rearranged in the fourth display area 100D. FIG. 10 shows a state that the picture 110 has not been completed. As triggered by this, a bad-luck image 121 showing a text of “Almost . . . Bad luck . . .” is displayed to the lower image display panel 16.

[0068] On the other hand, FIG. 1D shows a state that the picture 110 has been completed. As triggered by this, a picture-completion text image 122 showing a text of “You did it! FREE GAME!!!” is displayed to the lower image display panel 16.

[0069] Further, a picture-completion effect image 131 is displayed to the lower image display panel 16.

[0070] In the present embodiment, as triggered by the completion of the picture 110, a predetermined number C of the free game (10 games, in the present embodiment) are generated. In a free game period, a slot machine game is executed even a game medium is not BET. The slot machine game executed in a period other than the free game period is referred to as a normal game, in the present description.

[0071] In the present embodiment, the display object rearranged in the normal game is different from the display object rearranged in the free game.

[0072] The free game is as same as the normal game in that there may be rearranged three types of the display objects including the display object showing the normal symbol only, the display object showing the normal symbol and the picture piece, and the display object showing the odds symbol.

[0073] In the normal game, there has been described the case that the picture pieces form the picture 110. On the other hand, the picture pieces shown in the display objects to be rearranged in the free game form a picture 111 (see FIG. 1E, hereinafter, also referred to as a first special picture) or a picture 112 (see FIG. 1F, hereinafter, also referred to as a second special picture).

[0074] As illustrated in FIG. 1E, when the picture 111 is completed, a first-special-picture-completion text image 123 showing a text of “You did it! JACKPOT!!!” is displayed to the lower image display panel 16, in addition to a first-special-picture-completion effect image 132.

[0075] In the present embodiment, in the case that the first special picture is completed in the free game, a payout of a progressive jackpot is conducted.

[0076] As illustrated in FIG. 1F, when the picture 112 is completed, a second-special-picture-completion text image 133 showing a text of “Remaining number of free game is increased!” is displayed to the lower image display panel 16, in addition to a second-special-picture-completion effect image 124.

[0077] In the present embodiment, in the case that the second special picture is completed in the free game, a predetermined number C is added to the remaining number of the free game.

[0078] There has been described the outline of the present embodiment.

[0079] Hereinafter, the first embodiment will be described in more detail.

[0080] FIG. 2 is a perspective view illustrating the external appearance of the slot machine.

[0081] In the slot machine 10, a coin, a bill, or electronic valuable information corresponding thereto is used as a game medium. However, in the present invention, a game medium is not particularly limited. Examples of the game medium may include a medal, a token, electronic money, or a ticket. It should be noted that the ticket is not particularly limited, and examples thereof include a ticket with a bar code, which will be described later.

[0082] Here, the slot machine 10 is a standalone type slot machine that is not connected to a network, but the present invention can also be applied to a slot machine connected to a network.

[0083] The slot machine 10 includes: a cabinet 11; a top box 12 placed on the upper side of the cabinet 11; and a main door 13 provided at the front face of the cabinet 11. The lower image display panel 16 is provided in front of the main door 13. The lower image display panel 16 includes a liquid crystal display panel and the symbol matrix SM (see FIG. 1A) is displayed thereto. In the lower image display panel 16, there are provided a number-of-credits display section 31 and a number of payouts display section 32 (not shown).

[0084] The number-of-credits display section 31 displays an image indicating the number of credited coins. The number-of-payouts display section 32 displays an image indicating the number of coins to be paid out as the payout.

[0085] Further, a touch panel 69, which is not shown in the figure, is provided on the front face of the lower image display panel 16, and the player can input various kinds of commands by operating the touch panel 69.

[0086] Below the lower image display panel 16, there are provided a control panel 20 comprised of a plurality of buttons 23 to 27 with each of which a command according to the game progress is inputted by the player, a coin receiving slot 21 through which a coin is accepted into the cabinet 11, and a bill validator 22.

[0087] The control panel 20 is provided with a start button 23, a change button 24, a CASHOUT button 25, a 1-BET button 26, and a maximum BET button 27. The start button 23 is used for inputting a command to start a game. The change button 24 is used for making a request of staff at a recreation facility for exchange. The CASHOUT button 25 is used for inputting a command to pay out credited coins to a coin tray 18.

[0088] The 1-BET button 26 is used for inputting a command to BET one coin on a game out of credited coins. The maximum BET button 27 is used for inputting a command to BET the maximum number (50 coins in the present embodiment) of coins that can be bet on a single game out of credited coins.

[0089] The bill validator 22 not only discriminates a regular bill from a false bill, but also accepts the regular bill into the cabinet 11. It should be noted that the bill validator 22 may be configured so as to be capable of reading a later-described ticket 39 with a barcode. At the lower front face of the main door 13, namely below the control panel 20, there is provided a belly glass 34 on which a character or the like of the slot machine 10 is drawn.

[0090] At the front face of the top box 12, an upper image display panel 33 is provided. The upper image display panel 33 is provided with a liquid crystal panel to display, for

example, an image representing an introduction of the contents of a game or a description of a rule of the game.

[0091] Further, the top box 12 is provided with a speaker 29. Below the upper image display panel 33, there are provided a ticket printer 35, a card reader 36, a data display 37, and a keypad 38. The ticket printer 35 prints on a ticket a barcode as coded data of the number of credits, date and time, an identification number of the slot machine 10, and the like, and outputs the ticket as a ticket 39 with a barcode. The player can make another slot machine read the ticket 39 with a barcode to play a game thereon, or can exchange the ticket 39 with a barcode with bills or the like at a predetermined place in the recreation facility (for example, a cashier in a casino).

[0092] The card reader 36 reads data from a smart card and writes data into the smart card. The smart card is a card owned by the player, and for example, data for identifying a player and data on a history of games played by the player are stored therein. Data corresponding to a coin, a bill, or a credit may be stored in the smart card. Further, in place of the smart card, a magnetic stripe card may be adopted. The data display 37 is comprised of a fluorescent display or the like, and displays, for example, data read by the card reader 36 or data inputted by the player through the keypad 38. The keypad 38 is used for inputting a command and data concerning the issue of a ticket and the like.

[0093] FIG. 3 is a block diagram showing an internal configuration of the slot machine shown in FIG. 2.

[0094] A gaming board 50 includes a CPU (Central Processing Unit) 51, a ROM 55, and a boot ROM 52 which are interconnected to one another via an internal bus, a card slot 53S corresponding to a memory card 53, and an IC socket 54S corresponding to a GAL (Generic Array Logic) 54.

[0095] The memory card 53 is formed from a nonvolatile memory such as CompactFlash (registered trademark) and stores game programs and game system programs. The game programs include a display-object selection program. The aforementioned display-object selection program is a program for determining the display object to be rearranged in the symbol matrix SM. The aforementioned display-object selection program includes display-object weighing data in association with a plurality of types of payout ratios (for example, 80%, 84%, 88%). The display-object weighing data is data indicating the correspondence between the respective display objects, and one or more random numbers which fall in a predetermined numerical range (0 to 255). The payout ratios are determined based on payout-ratio setting data outputted from the GAL 54 and, based on the display-objects weighing data associated with the payout ratios, the display objects to be rearranged in the symbol matrix are determined.

[0096] Here, the display-object selection program includes a display-object selection program for the normal game and the display-object selection program for the free game. The display object to be determined by the display-object selection program for the normal game includes the display object showing the picture piece for forming the picture 110. Further, the display object to be determined by the display-object selection program for the free game includes the display object showing the picture piece for forming the picture 111 and the display object showing the picture piece for forming the picture 112.

[0097] Further, the game programs include odds data indicative of the correspondence relation among the type and the number of the rearranged normal symbols and the number of coin-outs (see FIG. 7).

[0098] Further, the card slot 53S is configured so as to allow the memory card 53 to be inserted therein or ejected therefrom, and is connected to a mother board 40 via an IDE bus. Thus, the memory card 53 can be ejected from the card slot 53S, and then another game program is written onto the memory card 53, and the memory card 53 can be inserted into the card slot 53S, to change the type and contents of a game to be played on the slot machine 10. The game program includes a program associated with the progress of a game. The game program also includes image data and sound data to be outputted during the game. The image data includes image data indicating a symbol matrix and image data indicating an effect image according to the picture (the li-zhi effect image 130, the picture-completion effect image 131, the first-special-picture-completion effect image 132, the second-special-picture-completion effect image 133, and the like).

[0099] The GAL 54 is a type of PLD having a fixed OR array structure. The GAL 54 includes plural input ports and plural output ports and, when predetermined data is inputted to an input port, the GAL 54 outputs data corresponding to the aforementioned data from an output port. The data outputted from this output port is the aforementioned payout-ratio setting data.

[0100] Further, the IC socket 54S is configured to allow the GAL to be attached thereto and detached therefrom and is connected to the mother board 40 through a PCI bus. Accordingly, the GAL 54 can be replaced with another GAL 54 to change the payout-ratio setting data.

[0101] A CPU 51, a ROM 55 and a boot ROM 52 interconnected to one another via an internal bus are connected to the mother board 40 by PCI bus. The PCI bus supplies power to the gaming board 50 from the mother board 40, as well as transmitting a signal between the mother board 40 and the gaming board 50. The ROM stores country identification information and an authentication program. The boot ROM 52 stores an auxiliary authentication program and a program (boot code) to be used by the CPU 51 for activating the auxiliary authentication program, and the like.

[0102] The authentication program is a program (falsification check program) for authenticating a game program and a game system program. The authentication program is written along a procedure (authentication procedure) for checking and proving that a game program and a game system program to be subject to authentication loading processing have not been falsified, namely authenticating the game program and the game system program. The auxiliary authentication program is a program for authenticating the above-mentioned authentication program. The auxiliary authentication program is written along a procedure (authentication procedure) for proving that an authentication program to be subject to the authentication processing has not been falsified, namely, authenticating the authentication program.

[0103] The mother board 40 is constructed with a general-purpose mother board commercially available (a printed circuit board on which basic parts of a personal computer are mounted) and includes a main CPU 41, ROM (Read Only Memory) 42 and RAM (Random Access Memory) 43. The mother board 40 is the controller of the present invention.

[0104] ROM 42 is constituted of a memory device such as a flash memory and stores thereon a program such as BIOS (Basic Input/Output System) executed by the main CPU 41 and permanent data. When BIOS is executed by the main CPU 41, not only is initialization processing for predetermined peripheral devices conducted, but a capture processing

for the game program and game system program stored on the memory card **53** is also started via the gaming board **50**. In the present invention, contents of ROM **42** may be rewritable or not rewritable.

[0105] RAM **43** stores data and a program used at the time of operation of the main CPU **41**, and various flags. RAM **43** can also store the authentication program read through the gaming board **50**, the game program, and the game system program. RAM **43** further stores data on the number of credits, the number of coins-in or coins-out for one game, and the like.

[0106] Further, in the RAM **43**, a number-of-free-game storage area is provided. The number-of-free-game storage area stores data indicating the remaining number of the free game.

[0107] To the mother board **40**, a body PCB (Printed Circuit Board) **60** and a door PCB **80**, which will be described later, are connected through respective USBs. Further, the mother board **40** is connected with a power supply unit **45**. When the power is supplied from the power unit **45** to the mother board **40**, the main CPU **41** of the mother board **40** is activated and the power is supplied to the gaming board **50** through the PCI bus so that the CPU **51** is activated.

[0108] The body PCB **60** and the door PCB **80** are connected with equipment and devices that generate input signals to be inputted to the main CPU **41**, and equipment and devices operations of which are controlled by control signals outputted from the main CPU **41**. The main CPU **41** executes a game program stored in the RAM **43** based on an input signal inputted to the main CPU **41**, thereby executes the predetermined arithmetic processing and stores a result thereof in the RAM **43**, or transmits a control signal to each of the equipment and devices as processing for controlling each of the equipment and devices.

[0109] To the body PCB **60**, there are connected a lamp **30**, a hopper **66**, a coin detecting portion **67**, a graphic board **68**, a speaker **29**, a touch panel **69**, a bill validator **22**, a ticket printer **35**, a card reader **36**, a key switch **38S**, and a data display **37**. The lamp **30** lights up in a predetermined pattern based on a control signal outputted from the main CPU **41**.

[0110] The hopper **66** is installed inside the cabinet **11** and pays out a predetermined number of coins from the coin payout exit **19** to the coin tray **18**, based on a control signal outputted from the main CPU **41**. The coin detecting portion **67** is provided inside the coin payout exit **19**, and outputs an input signal to the main CPU **41** when detecting a payout of a predetermined number of coins from the coin payout exit **19**.

[0111] The graphic board **68** controls, based on a control signal outputted from the main CPU **41**, an image display to the upper image display panel **33** and the lower image display panel **16**. The number of credits stored in RAM **43** is displayed to the number-of-credits display section **31** (not shown) of the lower image display panel **16**. The number of coins-out is displayed to the number-of-payouts display section **32** (not shown) of the lower image display panel **16**. The graphic board **68** is equipped with VDP (Video Display Processor) which generates image data based on a control signal outputted from the main CPU **41** and a video RAM which temporarily stores image data generated by VDP, and of the like equipments. It should be noted that image data used in generating image data with VDP is contained in a game program read from the memory card **53** and stored in RAM **43**.

[0112] The bill validator **22** not only discriminates a regular bill from a false bill, but also accepts the regular bill into the cabinet **11**. When accepting a regular bill, the bill validator **22** outputs an input signal to the main CPU **41**, based on the face amount of the bill. The main CPU **41** stores, in the RAM **43**, the number of credits according to the face amount of the bill transmitted with the input signal.

[0113] The ticket printer **35** prints on a ticket, based on a control signal outputted from the main CPU **41**, a barcode formed by encoding data such as the number of credits, date and time, an identification number of the slot machine **10**, and of the like data stored in the RAM **43**, and outputs the ticket as a ticket **39** with a barcode.

[0114] The card reader **36** reads data from a smart card and transmits the data to the main CPU **41** or writes data into the smart card based on a control signal from the main CPU **41**. The key switch **38S** is provided on the keypad **38**, and outputs a predetermined input signal to the main CPU **41** when the keypad **38** is operated by the player. The data display **37** displays, based on a control signal outputted from the main CPU **41**, data read by the card reader **36** or data inputted by the player through the keypad **38**.

[0115] To the door PCB **80**, there are connected a control panel **20**, a reverter **21S**, a coin counter **21C**, and a cold cathode tube **81**. The control panel **20** is provided with a start switch **23S** corresponding to the start button **23**, a change switch **24S** corresponding to the change button **24**, a CASH-OUT switch **25S** corresponding to the CASHOUT button **25**, a 1-BET switch **26S** corresponding to the 1-BET button **26**, and a maximum BET switch **27S** corresponding to the maximum BET button **27**. Each of the switches **23S** to **27S** outputs an input signal to the main CPU **41** when each of the buttons **23** to **27** corresponding thereto is operated by the player.

[0116] The coin counter **21C** is provided inside the coin receiving slot **21** and discriminates a regular coin from a false coin inserted into the coin receiving slot **21** by the player. Coins other than regular coins are discharged from the coin payout exit **19**. When the coin counter **21C** detects a regular coin, the coin counter **21C** outputs an input signal to the main CPU **41**.

[0117] The reverter **21S** operates based on a control signal outputted from the main CPU **41**, and distributes a coin identified by the coin counter **21C** as a regular coin into a cash box (not shown) or the hopper **66**, which are disposed in the slot machine **10**. Specifically, when the hopper **66** is filled with coins, a regular coin is distributed into the cash box by the reverter **21S**. On the other hand, when the hopper **66** is not filled with coins, the regular coin is distributed into the hopper **66**. The cold cathode tube **81** functions as a backlight installed on the rear face side of the lower image display panel **16** and the upper image display panel **33**, and lights up based on a control signal to be outputted from the main CPU **41**.

[0118] Next, processing executed in the slot machine **10** will be described.

[0119] FIG. **4** is a flowchart illustrating main processing executed in the slot machine **10** according to a first embodiment.

[0120] First, in the slot machine **10**, activation processing is executed (step **S101**). The activation processing will be specifically described later by using FIG. **9** to FIG. **11**.

[0121] After the activation processing, the main CPU **41** executes processing of addition of the number of credits stored in the RAM **43** as an interrupt processing, on receiving

a detection signal outputted from the coin counter 21C when the coin inserted into the coin receiving slot 21 is detected by the coin counter 21.

[0122] After the processing of step S101, the main CPU 41 determines whether or not a free game flag is set (step S102). The free game flag is a flag to be set as triggered by the completion of the picture 110 (see FIG. 1D) and is a flag indicating that it is currently the free game period (see step S29 in FIG. 6).

[0123] When determining that the free game flag is not set, the main CPU 41 executes normal game execution processing (step S200). The normal game execution processing will be specifically described later by using FIG. 5 and FIG. 6. After executing the processing of step S200, the main CPU 41 returns the processing to step S102.

[0124] When determining that the free game flag is set, the main CPU 41 executes free game execution processing (step S300). The free game execution processing will be specifically described later by using FIG. 8. After executing the processing of step S300, the main CPU 41 returns the processing to step S102.

[0125] Hereinafter, there will be described the slot machine game execution processing (the normal game execution processing and the free game execution processing) performed in the slot machine 10.

[0126] The main CPU 41 reads a game program and executes the game program to progress a slot machine game.

[0127] FIG. 6 is a flowchart illustrating a subroutine of slot machine game execution processing.

[0128] FIG. 7 is a view illustrating a relation among a type and a number of rearranged normal symbols and a number of coin-outs.

[0129] First, the main CPU 41 determines whether or not a coin has been BET (step S11). In the processing, the main CPU 41 determines whether or not to have received an input signal outputted from the 1-BET switch 26S when the 1-BET button 26 is operated or an input signal outputted from the maximum BET switch 27S when the maximum BET button 27 is operated. When determining that a coin has not been BET, the main CPU 41 returns the processing to step S11.

[0130] On the other hand, when determining that a coin has been BET in step S11, the main CPU 41 executes processing for making a subtraction from the number of credits stored in the RAM 43, according to the number of BET coins (step S12). It should be noted that, when the number of BET coins is larger than the number of credits stored in the RAM 43, the main CPU 41 does not execute the processing for making a subtraction from the number of credits stored in the RAM 43, and returns the processing to step S11. When the number of BET coins exceeds an upper limit of the number of coins that can be BET on a single game (50 coins in the present embodiment), the main CPU 41 does not execute the processing for making a subtraction from the number of credits stored in the RAM 43, and the processing is proceeded to step S13.

[0131] Next, the main CPU 41 determines whether or not the start button 23 has been turned on (step S13). In the processing, the main CPU 41 determines whether or not to have received an input signal outputted from the start switch 23S when the start button 23 is pressed.

[0132] When determining that the start button 23 has not been turned ON, the main CPU 41 returns the processing to step S11. It should be noted that, when the start button 23 is not turned ON (for example, when a command to end the

game is inputted without pressing the start button 23), the main CPU 41 cancels a result of the subtraction obtained in step S12.

[0133] On the other hand, when determining in step S13 that the start button 23 has been turned ON, the main CPU 41 executes display-object rearrangement processing (step S14).

[0134] Here, the display-object rearrangement processing will be described by using FIG. 6.

[0135] First, the main CPU 41 executes display-object determination processing (step S20). In the processing, the main CPU 41 determines the display object to be rearranged in the symbol matrix SM by executing the display-object selection program described above.

[0136] Next, the main CPU 41 starts scroll-display of the display objects and rearranges the display objects in the first display area 100A to the third display area 100C based on the determination result in step S20 (step S21).

[0137] Next, the main CPU 41 determines whether or not the rearrangement is in the li-zhi state for the completion of the picture 110 (see FIG. 1D) (step S22). Namely, the main CPU 41 determines whether or not the six display objects rearranged in the second display area 100B and the third display area 100C are the display objects for forming the picture 110.

[0138] When determining that the rearrangement is not in the li-zhi state for completion of the picture 110, the main CPU 41 rearranges the display objects in the fourth display area 100D to the fifth display area 100E (step S23) and terminates the present subroutine.

[0139] On the other hand, when determining that the rearrangement is in the li-zhi state for the completion of the picture 110, the main CPU 41 displays the li-zhi effect image 130 and the li-zhi text image 120 (see FIG. 1B) to the lower image display panel 16 (step S24).

[0140] Next, the main CPU 41 rearranges the display objects in the fourth display area 100D (step S25).

[0141] Then, the main CPU 41 determines whether or not the picture 110 is completed. Namely, the main CPU 41 determines whether or not the nine display objects rearranged in the second display area 100B to the fourth display area 100D are the display objects for forming the picture 110.

[0142] When determining that the picture 110 is not completed, the main CPU 41 displays the bad-luck image 121 (see FIG. 1C) to the lower image display panel 16 (step S27).

[0143] On the other hand, when determining that the picture 110 is completed, the main CPU 41 displays the picture-completion effect image 131 and the picture-completion text image 122 (see FIG. 1D) to the lower image display panel 16 (step S28).

[0144] Thereafter, the main CPU 41 sets the free game flag (step S29) and sets the remaining number T of the free game to $T=C$ in the number-of-free-game storage area in the RAM 43 (step S30).

[0145] After executing the processing of step S27 or step S30, the main CPU 41 rearranges the display object in the fifth display area 100E (step S31) and terminates the present subroutine.

[0146] The display-object rearrangement processing executed in step S14 in FIG. 5 has been described by using FIG. 6.

[0147] After executing the processing of step S14, the main CPU 41 determines whether or not a prize is established (step S15). Here, the establishment of the prize refers to the rearrangement of two or more normal symbols of at least one

type, out of “10”, “J”, “Q”, “K”, “UMBRELLA”, “CLOUD”, “THUNDER”, and “SUN”, in the symbol matrix SM (see FIG. 7). In the processing, the main CPU 41 counts the number of normal symbol for each type, with regard to the rearranged display objects in step S14. Then, the main CPU 41 determines whether or not the counted number is equal to or more than two.

[0148] When determining that the prize has been established, the main CPU 41 executes processing according to payout of the coin (step S16). In the processing, the main CPU 41 determines the number of coin-outs based on the type and the number of rearranged normal symbols with reference to the odds data (see FIG. 7A) stored in the RAM 43.

[0149] For example, in the case that two “SUN” are rearranged when 2 coins are BET, the number of coin-outs is 50 ($=25 \times 2$).

[0150] Here, in the case that the odds symbol is rearranged in the symbol matrix SM, the number obtained by multiplying the number calculated based on the type and the number of the normal symbols by 3.

[0151] In the case of accumulating the coin, the main CPU 41 executes processing for adding a number of credits corresponding to the determined number of coin-outs. On the other hand, in the case of paying out coins, the main CPU 41 transmits a control signal to the hopper 66 in order to pay out the coin in number corresponding to the determined number of coin-outs.

[0152] When determining that the prize has not been established in step S15, or after executing the processing of step S16, the main CPU 41 terminates the present subroutine.

[0153] FIG. 8 is a flowchart illustrating a subroutine of free game execution processing.

[0154] First, the main CPU 41 executes the processing of step S41 to step S42, and since the processing is virtually the same processing as the processing of step S13 to step S14 in FIG. 5, the description thereof is omitted here.

[0155] Next, the main CPU 41 determines whether or not the first special picture is completed (step S43). Namely, the main CPU 41 determines whether or not the nine display objects rearranged in the second display area 100B to the fourth display area 100D are the display objects for forming the picture 111.

[0156] When determining that the first special picture is completed, the main CPU 41 conducts the progressive jackpot (step S44). The number of coin to be paid out in the progressive jackpot is a number corresponding to the value obtained by adding an initial payout value to an integration value (the integration value of a part of the number of inserted game media) stored in the RAM 43, and the payout is conducted as a hand pay. Examples of the processing conducted by the main CPU 41 in step S44 include output of a notification sound from the speaker 29, lighting of the lamp 30, print of the ticket 39 with a barcode indicative of the number of coin-outs, and the like.

[0157] Since the slot machine 10 is a stand-alone type slot machine, a value obtained by adding the initial payout value to the integration value (the integration value of a part of the number of inserted game media) on a single slot machine 10 is adopted as the payout of the progressive jackpot.

[0158] However, in the present invention, the integration value adopted in the progressive jackpot is not limited to this example. For example, in the case that the slot machine is connected to a network, there may be adopted an integration value on the slot machines of the same type in a single casino,

an integration value on the slot machines of the same type provided in the same area (for example, state and country), and the like.

[0159] When determining that the first special picture is not completed, the main CPU 41 determines whether or not the second special picture is completed (step S45). Namely, the main CPU 41 determines whether or not the nine display objects rearranged in the second display area 100B to the fourth display area 100D are the display objects for forming the picture 112.

[0160] When determining that the second special picture is completed, the main CPU 41 sets the remaining number T of the free game to $T=T+C$ in the number-of-free-game storage area in the RAM 43 (step S46).

[0161] When determining that the second special picture is not completed in step S45, or after executing the processing of step S44 or step S46, the main CPU 41 executes processing of step S47 to step S48. Since the processing is virtually the same processing as the processing of step S15 to step S16 in FIG. 5, the description thereof will be omitted here.

[0162] When determining that the prize has not been established in step S47, or after executing the processing of step S48, the main CPU 41 sets the remaining number T of the free game to $T=T-1$ in the number-of-free-game storage area in the RAM 43 (step S49).

[0163] Next, the main CPU 41 determines whether or not T is zero ($T=0$) (step S50). When determining that T is not zero, the main CPU 41 terminates the present subroutine. On the other hand, when determining that T is zero, the main CPU 41 clears the free game flag (step S51) and terminates the present subroutine.

[0164] Subsequently, there will be described activation processing (see step S101 in FIG. 5) by using FIG. 9 to FIG. 11.

[0165] FIG. 9 is a flowchart illustrating a procedure of activation processing. This activation processing is the processing conducted by the mother board 40 and the gaming board 50. It should be noted that the memory card 53 is inserted into the card slot 53S in the gaming board 50, and the GAL 54 is mounted onto the IC socket 54S.

[0166] First, when a power switch is turned on (power is turned on) in the power supply unit 45, the mother board 40 and the gaming board 50 are activated (steps S1-1, S2-1). Inactivation of the mother board 40 and the gaming board 50, individual processing is respectively executed in parallel. Namely, in the gaming board 50, the CPU 51 reads the auxiliary authentication program stored in the boot ROM 52, and conducts auxiliary authentication according to the read auxiliary authentication program, to previously check and prove that the authentication program is not falsified before loading the program to the mother board 40 (step S2-2). Meanwhile, in the mother board 40, the main CPU 41 executes the BIOS stored in the ROM 42, and expands compressed data which is incorporated in the BIOS into the RAM 43 (step S1-2). The main CPU 41 then executes the BIOS expanded into the RAM 43 to diagnose and initialize a variety of peripheral devices (step S1-3). The processing of step S1-3 will be specifically described later with reference to FIG. 12.

[0167] Since the ROM 55 of the gaming board 50 is connected to the main CPU 41 via the PCI bus, the main CPU 41 reads the authentication program stored in the ROM 55, and stores the read authentication program into the RAM 43 (step S1-4). At this time, according to the standard BIOS function of BIOS, the main CPU 41 takes a checksum by ADDSUM

system (normal checking system) and stores the authentication program into the RAM 43, while conducting processing for confirming whether or not the storage is certainly conducted.

[0168] Next, after confirming what is connected to the IDE bus, the main CPU 41 accesses, via the IDE bus, the memory card 53 inserted in the card slot 53S, to read a game program or a game system program from the memory card 53. In this case, the main CPU 41 reads data constituting the game program and the game system program by 4 bytes. Subsequently, the main CPU 41 conducts authentication to check and prove that the read game program and game system program have not been falsified, following the authentication program stored in the RAM 43 (step S1-5). When this authentication processing is normally completed, the main CPU 41 writes and stores the game program and the game system program, which have been authenticated targets (which have been authenticated), into the RAM 43 (step S1-6). Next, the main CPU 41 accesses, via the PCI bus, the GAL 54 mounted on the IC socket 54S, reads payout ratio setting data from the GAL 54, and writes and stores the data into the RAM 43 (step S1-7). Subsequently, the main CPU 41 conducts processing for reading country identification information stored in the ROM 55 of the gaming board 50 via the PCI bus, and writes and stores the read country identification information into the RAM 43 (step S1-8).

[0169] After conducting the above-mentioned processing, the main CPU 41 sequentially reads and executes the game program and the game system program, thereby execute insurance setting processing and game execution processing.

[0170] FIG. 10 is a chart illustrating a procedure of peripheral-device initialization processing.

[0171] First, the main CPU 41 diagnoses and initializes a reel-related device (step S3-1). In this processing, the main CPU 41 sequentially transmits request signals to the index detecting circuit 65, the position-change detecting circuit 71, and the motor driving circuit 62. Then, the main CPU 41 determines whether or not to have received predetermined response signals and conducts clearance of a predetermined storage area, and the like.

[0172] Next, the main CPU 41 diagnoses and initializes a display (step S3-2). In this processing, the main CPU 41 transmits the request signal to the graphic board 68. Then, the main CPU 41 determines whether or not to have received a predetermined response signal and conducts clearance of a predetermined storage area, and the like.

[0173] Next, the main CPU 41 diagnoses and initializes various types of input devices (step S3-3). In this processing, the main CPU 41 transmits request signals to the input devices such as the spin switch 23S, the change switch 24S, the CASHOUT switch 25S, the 1-BET switch 26S, the maximum BET switch 27S, and the touch panel 11, and then determines whether or not to have received predetermined response signals.

[0174] Subsequently, the main CPU 41 diagnoses and initializes other peripheral devices connected to the main CPU 41 (step S3-4). Then the present subroutine is terminated.

[0175] In the present embodiment, there has been described the case where the slot machine 10 is a stand-alone type slot machine. However, in the present invention, a plurality of slot machines may be connected to a central controller via a network and controlled by the central controller.

[0176] FIG. 11 is a chart illustrating a procedure of activation processing executed by the central controller.

[0177] First, when the power switch is turned on (the power is turned on) in the power unit, a mother board is activated (step S4-1).

[0178] In the mother board, a CPU executes a BIOS stored in a ROM so as to expand compressed data incorporated in the BIOS into a RAM (step S4-2). Then, the CPU executes the BIOS expanded into the RAM, and then, diagnoses and initializes various types of peripheral devices such as a display (step S4-3).

[0179] Next, the CPU executes initialization processing of each slot machine. In this processing, the CPU establishes a network connection between the central controller and each slot machine, and diagnoses if the network functions properly.

[0180] After the above-described processing, the CPU controls proceeding of the game executed in a plurality of the slot machines by reading and executing a game control program.

[0181] As above described, according to the slot machine 10 of the present embodiment, the display objects may be rearranged in the symbol matrix SM. Among these display objects, there exists the display object showing the picture piece for forming the predetermined picture (picture 110). Then, the free game is executed in the case that the picture pieces shown by the display objects rearranged in the symbol matrix SM form the predetermined picture. Namely, a condition for generation of the free game is a display of a predetermined picture in the symbol matrix SM, and the condition is different from a mere arrangement or a mere number of the symbols and is visibly very clear to the player. Accordingly, it is easier to have the player have an expectation for the completion of such a predetermined picture, and player's interest in the free game can be fully attracted.

[0182] Further, according to the slot machine 10 of the present embodiment, the picture 110 as a trigger for generating the free game is displayed in the predetermined display area (the second display area 100B to the fourth display area 100D) in the symbol matrix SM. Accordingly, the player's attention can be concentrated on such areas. Accordingly, it is possible to have the player absorbed in the game.

[0183] Furthermore, according to the slot machine 10 of the present embodiment, the display objects are sequentially rearranged in the second display area 100B to the fourth display area 100D, in which the picture 110 may be displayed. When the display objects are rearranged in the second display area 100B and the third display area 100C, if the picture pieces shown in the rearranged display objects form the picture 110 to be completed when the picture piece for forming the picture 110 is stop-displayed in the fourth display area 110D (namely, in the case of the li-zhi state for completion of the predetermined picture), the li-zhi effect image is displayed.

[0184] Accordingly, it is possible to increase the player's expectation for the completion of the picture 110, as well as evoking the player's attention on the predetermined picture.

[0185] Further, according to the slot machine 10 of the present embodiment, as triggered by the formation of the picture 111 by the picture pieces shown in the display objects rearranged in the free game, a payout of the progressive jackpot is conducted. Further, as triggered by the formation of the picture 112 by the picture pieces shown in the display objects rearranged in the free game, the remaining number of the free game is increased. Accordingly, it becomes possible to have the player have an expectation for the completion of the picture 111 or the picture 112 in the free game, so that the

player's interest in the free game can be fully attracted. Moreover, it becomes possible to significantly increase the player's interest in the completion of the picture 110 in the normal game, so that the player can be absorbed in the game.

[0186] In the above-described embodiment, there has been described the case where the symbols (the normal symbol and the special symbol) are rearranged in the symbol matrix SM in the lower image display panel 16 (the case where the slot machine 10 is a so-called video slot machine). However, a slot machine of the present invention may be configured such that the symbols (the normal symbol and the special symbol) are stop-displayed by using a so-called mechanical reel.

[0187] In the following, a slot machine 310 having such a configuration will be described.

[0188] It is to be noted that in the following, the same constituents as those of the slot machine 10 according to the first embodiment are described while provided with the same numerals.

[0189] Further, a description will be omitted as for a part to which the description of the slot machine 10 is applicable.

[0190] FIG. 12 is a perspective view illustrating an external appearance of a slot machine according to another embodiment.

[0191] As illustrated in FIG. 12, five reels 314 (314A, 314B, 314C, 314D and 314E) are rotatably provided within a cabinet 11. On the outer peripheral surfaces of the reels 314A, 314B, 314C, 314D and 314E, there are drawn display objects sequences constituted by display objects each showing normal symbols only, such as "10", "J", "Q", "K", "UMBRELLA", "CLOUD", "THUNDER", and "SUN", and the display objects each showing the normal symbols and the picture piece for forming the predetermined picture (the picture 110, the picture 112, the picture 112).

[0192] At the center portion of the lower image display panel 16, there is provided a display area 328 for displaying the symbols. Within the display area 328, there are formed five display windows 315 (315A, 315B, 315C, 315D and 315E) visible through their back surfaces. Further, the symbols drawn on the outer peripheral surfaces of the reels 314A, 314B, 314C, 314D and 314E are displayed on a three-by-three basis, through the display windows 315A, 315B, 315C, 315D and 315E.

[0193] An internal configuration and flowcharts of the slot machine 310 are virtually the same as those in the above-described embodiment, and therefore, the description thereof will be omitted here.

[0194] Although the present invention has been described with reference to embodiments thereof, these embodiments merely illustrate concrete examples, not restrict the present invention. The concrete structures of respective means and the like can be designed and changed as required. Furthermore, there have been merely described most preferable effects of the present invention, as the effects of the present invention, in the embodiments of the present invention. The effects of the present invention are not limited to those described in the embodiments of the present invention.

[0195] Further, in the aforementioned detailed description, characteristic portions have been mainly described, for ease of understanding the present invention. The present invention is not limited to the embodiments described in the aforementioned detailed description, but can be also applied to other embodiments over a wider range of applications. Further, the terms and phrases used in the present specification have been used for clearly describing the present invention, not for

limiting the interpretation of the present invention. Further, those skilled in the art will easily conceive other structures, systems, methods and the like which are included in the concept of the present invention, from the concept of the present invention described in the present specification. Accordingly, the description of the claims is intended to include equivalent structures that fall within the technical scope of the invention. Further, the abstract aims at enabling engineers and the like who belong to the present technical field but are not familiar with the patent office and public institutions, the patent, law terms and technical terms to immediately understand the technical content and the essence of the present application through brief studies. Accordingly, the abstract is not intended to restrict the scope of the invention which should be evaluated from the description of the claims. It is desirable that literatures and the like which have been already disclosed are sufficiently studied and understood, in order to sufficiently understand the objects of the present invention and the specific effects of the present invention.

[0196] In the aforementioned detailed description, there have been described processing to be executed by computers. The aforementioned description and expressions have been described for the sake of enabling those skilled in the art to understand the present invention most effectively. In the present specification, each step for deriving a single result should be understood to be self-consistent processing. Further, each step includes transmission, reception, recording and the like of electric or magnetic signals. Although, in the processing at each step, such signals have been expressed as bits, values, symbols, characters, terms, numerical characters and the like, it should be noticed that they have been merely used for convenience of description. Further, although the processing at each step was described using expressions common to human behaviors in some cases, the processing described in the present specification are to be executed by various types of devices, in principle. Further, other structures required for conducting each step will be apparent from the aforementioned description.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. A slot machine comprising:

a symbol display capable of variably displaying a display object showing a normal symbol and a picture piece for forming a predetermined picture; and

a controller,

said controller programmed to execute processing of

(A) stop-displaying at least a plurality of said display objects after variably displaying the plurality of said display objects, to said symbol display,

(B) offering a normal payout corresponding to the normal symbols shown by the display objects stop-displayed in said processing (A) or a combination of the normal symbols, and

(C) offering a predetermined profit different from said normal payout, as triggered by formation of said predetermined picture by the picture pieces shown by the display objects stop-displayed in said processing (A).

2. The slot machine according to claim 1,

wherein

said processing (C) is processing of

offering said predetermined profit as triggered by formation of said predetermined picture by the picture pieces shown by the display objects stop-displayed in a prede-

terminated display area in said symbol display, out of the display objects stop-displayed in said processing (A).

3. The slot machine according to claim 2 further comprising

a memory capable of storing effect data for conducting an effect,

wherein

said predetermined display area includes N units (N being an integer equal to or more than 2) of individual display areas,

said processing (A) includes processing of stop-displaying said display object in each of said individual display areas in succession, and

said controller is further programmed to execute processing of

(D) conducting the effect based on the effect data stored in said memory, if the picture pieces shown by the stop-displayed display objects form a picture when said display objects have been stop-displayed in (N-1) units of said individual display areas in said processing (A), said picture being said predetermined picture to be completed when the picture piece for forming said predetermined picture is stop-displayed in the last one of said individual display areas.

4. A slot machine comprising:

a symbol display capable of variably displaying a display object showing a normal symbol and a picture piece for forming a predetermined picture; and

a controller,

said controller programmed to execute processing of

(A) executing a normal game after stop-displaying at least a plurality of said display objects subsequent to a variable display of the plurality of said display objects to said symbol display, said normal game being a game offering a normal payout corresponding to the normal symbols shown by the stop-displayed display objects or a combination of the normal symbols; and

(B) executing a feature game different from said normal game, as triggered by formation of said predetermined picture by the picture pieces shown by the display objects stop-displayed to said symbol display, in said normal game executed in said processing (A).

5. The slot machine according to claim 4, wherein

said processing (B) includes processing of

(B-1) stop-displaying at least the plurality of said display objects after variably displaying the plurality of said display objects to said symbol display in said feature game, and

(B-2) offering a predetermined profit different from the payout corresponding to the normal symbols shown by the display objects or the combination of the normal symbols, as triggered by formation of the predetermined picture by the picture pieces shown by the display objects stop-displayed in said processing (B-1).

6. A control method of a slot machine, said control method comprising steps of:

(A) stop-displaying at least a plurality of display objects each showing a normal symbol and a picture piece for forming a predetermined picture, to a symbol display;

(B) offering a normal payout corresponding to the normal symbols shown by the display objects stop-displayed in said step (A) or a combination of the normal symbols; and

(C) offering a predetermined profit different from said normal payout, as triggered by formation of said predetermined picture by the picture pieces shown by the display objects stop-displayed in said step (A).

7. A control method of a slot machine, said control method comprising steps of:

(A) executing a normal game after stop-displaying at least a plurality of display objects each showing a normal symbol and a picture piece for forming a predetermined picture subsequent to a variable display of said plurality of display objects to a symbol display, said normal game being a game offering a normal payout corresponding to the normal symbols shown by the stop-displayed display objects or a combination of the normal symbols; and

(B) executing a feature game different from said normal game, as triggered by formation of said predetermined picture by the picture pieces shown by the display objects stop-displayed to said symbol display, in said normal game executed in said step (A).

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