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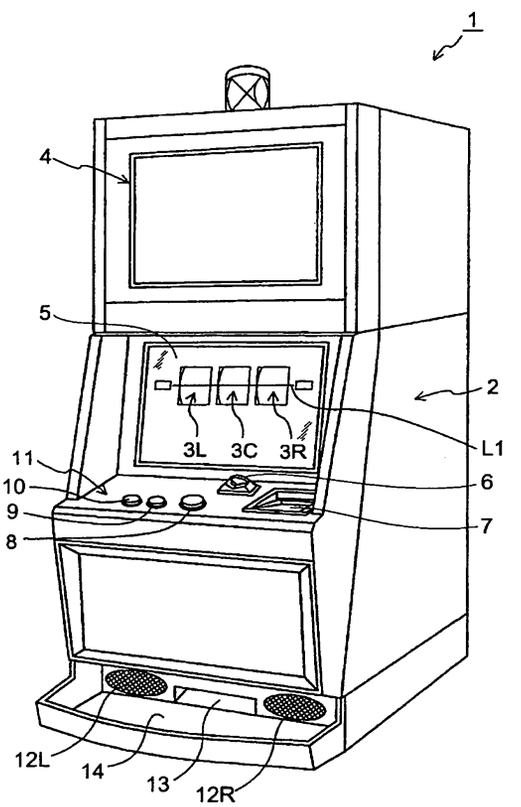
(54) Gaming machine

(57) The gaming machine in accordance with the present invention requires a gaming medium for starting the gaming; and comprises gaming proceeding control means for controlling stepwise game proceeding stepwise from starting to ending; and an abandon key for a player to abandon the proceeding with the stepwise game while playing the stepwise game. When the abandon key is operated by the player, the gaming machine calculates a point acquired by proceeding with the stepwise game from the starting of the stepwise game until the abandon key is operated.

Fig.1



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Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a gaming machine equipped with a function by which a player can abandon proceeding with game while playing the game.

Related Background Art

[0002] Gaming machines of gaming medium utilization type requiring players to insert medals, hard currencies, and coins, utilize credits such as coins, or use money information stored in prepaid cards while necessitating a gaming medium for starting game have conventionally been known (a gaming medium having a fixed form being also referred to as "coin"). Known as a gaming machine of this kind is a gaming machine (so-called video slot machine) comprising a liquid crystal display means for displaying images used for gaming, and reels displayed as images (which will also be referred to as "reels" in the following) rotate or scroll so as to effect variable displays upon an insertion of a coin or the like. At the time when the scrolling displays of the reels are stopped in this video slot machine, a combination of symbols appearing on a predetermined activated line (pay line) (the combination of symbols being referred to as "symbol combination" in the following) determines whether a game is won or not and a mode of winning (winning symbol arrangement) in the case of winning, whereby coins are paid out according to the winning symbol arrangement.

[0003] On the other hand, there have been gaming machines, such as portable or home gaming machines, which do not require coins to be inserted (requiring no gaming medium) before starting game. The gaming machines of this kind include those having a function of allowing a player to quit proceeding with game while playing the game and abandon proceeding with game when the player gives up. For example, Japanese Patent Application Laid-Open No.10-15244 (Patent Document 1) discloses a video gaming machine in which a video gaming machine main body used in connection with a separate monitor is provided with a reset button such that a game can be restarted when a user operates the reset button. On the other hand, Japanese Patent Application Laid-Open No. 5-3963 (Patent Document 2) discloses a game of go training machine provided with a move give-up key for displaying the next move and helping the move of a player when operated by the player.

SUMMARY OF THE INVENTION

[0004] As mentioned above, there are cases where players do not wish to proceed with game further while playing the gaming in a gaming machine requiring a gaming medium for starting the gaming. For example, these are cases where a player determines that a high point cannot be expected even if gaming is continued more or the player is bored with game in a gaming machine in which gaming proceeds stepwise from the start to end (gaming proceeding stepwise being referred to as "stepwise game" in the following). For such cases, gaming machines of gaming medium utilization type requiring a gaming medium for starting the gaming are also desired to be equipped with a function of allowing the proceeding with game to abandon.

[0005] However, in gaming machines requiring a gaming medium for starting game, a player uses a gaming medium by inserting a coin therein, utilizing a credit, and so forth, when starting the gaming. Therefore, if the player is simply allowed to abandon proceeding with the game, payouts such as the points acquired until the abandonment will be left unsecured. Hence, when the game is resumed thereafter, the game thereafter is likely to become a mere consumption game, thereby yielding the fear of deteriorating playability. Also, a coin or the like must be inserted again, and so forth, for resuming the game. Therefore, providing a conventional gaming machine of gaming medium utilization type with an abandoning function does not make the gaming medium such as coin used by the player effective but inutile, so that the use of gaming medium does not become meaningful, whereby the player becomes unsatisfied with the gaming, and so forth, thus yielding the fear of losing the playability.

[0006] For overcoming the problem mentioned above, it is an object of the present invention to provide a gaming machine requiring a gaming medium for starting game, which effectively utilizes the gaming medium such as coin used by the player even when the player abandons proceeding with the gaming, thereby keeping the playability from being lost.

[0007] For achieving the above-mentioned object, in one aspect, the present invention provides a gaming machine comprising gaming proceeding control means for controlling stepwise game proceeding stepwise from starting to ending, and requiring a gaming medium for starting the game; the gaming machine further comprising an abandon key for a player to abandon the proceeding with the stepwise game while playing the stepwise game, and point calculating means for calculating, when the abandon key is operated by the player, a point acquired by proceeding with the stepwise game from the starting of the stepwise game until the abandon key is operated.

[0008] Even when the abandon key is operated while playing the stepwise game in this gaming machine, a point is calculated acquired by proceeding with the stepwise game from the starting of the stepwise game until the abandon key is operated, whereby the content of proceeding with the gaming until the abandon key is operated is reflected in the point calculation.

[0009] Preferably, the gaming machine further comprises a display means for displaying an image used in the game, whereas the gaming proceeding control means performs automatic proceeding control causing the display means to display a post-operation stage image used in a post-operation stage after the operation of the abandon key in the stepwise game until the ending without an operation by the player, so as to proceed with the post-operation stage.

[0010] This allows the display means to display an image used in the gaming, and images used in a stage after the operation of the abandon key until the ending are automatically displayed in the display means, whereby the proceeding with game after the operation of the abandon key is clearly shown to the player.

[0011] Any of the above-mentioned gaming machines may further comprise a display means for displaying an image used in the game, and variable display means for variably displaying a plurality of symbols in a plurality of columns; wherein the gaming proceeding control means performs first game by causing the variable display means to variably display the plurality of symbols, and thereafter performs second game by causing the display means to display a tile image indicating a plurality of tiles and a board image indicating a board for arranging the tiles indicated by the tile image, so as to proceed with the stepwise game.

[0012] This allows such control as to proceed with the stepwise game by different kinds of game, i.e., the first game by a variable display of a plurality of symbols and the second game using the tile image and board image.

[0013] In another aspect, the present invention provides a gaming machine comprising display means for displaying an image used in game; shift determining means for determining whether a shift condition for shifting a game from a base game to a bonus game is satisfied or not; and shifting means for shifting the game from the base game to the bonus game according to a result of determination by the shift determining means; the gaming machine requiring a gaming medium for starting the gaming; the gaming machine further comprising touch input means, disposed in front of the display means, for inputting corresponding input information corresponding to a touch position of a finger; gaming proceeding control means controlling proceeding with the stepwise game proceeding stepwise from the starting to ending after the shifting means shifts the game to the bonus game by causing the display means to display a stepwise game image used in the stepwise game including an abandon key image indicating an abandon key for a player to abandon the proceeding with the stepwise game while playing the stepwise game; and point calculating means for calculating, when corresponding input information corresponding to the abandon key information is inputted from the touch input means, a point acquired by proceeding with the stepwise game from the starting of the stepwise game until the corresponding input information is inputted.

[0014] When the player performs an operation of touching a position corresponding to the abandon key image in the touch input means with a contact body while playing the proceeding with game, a point is calculated acquired by proceeding with the stepwise game from the starting of the stepwise game until this operation is performed, whereby the proceeding with game until this operation is performed is reflected in the point calculation.

[0015] Preferably, in this gaming machine, the gaming proceeding control means performs automatic proceeding control for proceeding with a post-operation stage after the input of the corresponding input information corresponding to the abandon key image until the ending without an operation by the player.

[0016] In this case, once the player performs an operation of inputting the corresponding input information corresponding to the abandon key image, the post-operation stage proceeds thereafter until the ending even when the player does not operate.

[0017] Preferably, the gaming proceeding control means causes the display means to display a post-operation stage image used in the post-operation stage corresponding to the post-operation stage proceeds.

[0018] This allows the display means to automatically display images used in the stage after the operation of inputting the corresponding input information corresponding to the abandon key image until the ending, whereby the proceeding with game after the operation is clearly shown to the player.

[0019] The gaming proceeding control means may cause the display means to display as the stepwise game image a tile image indicating a plurality of tiles and a board image indicating a board for arranging the tiles indicated by the tile image, whereas the point calculating means may calculate the point by using the tile image indicating the tiles arranged within the board indicated by the board image.

[0020] In this case, the tiles arranged within the board until the operation of inputting the corresponding input information corresponding to the abandon key image is performed are acquired in the point calculation.

[0021] Preferably, the gaming machine further comprises payout calculating means for determining the payout according to the point calculated by the point calculating means.

[0022] The gaming machine may further comprise arrangement state registering means for managing a state of arrangement of the tiles within the board, whereas the point calculating means may calculate the point by using information registered in the arrangement state registering means.

[0023] The present invention will be more fully understood from the detailed description given hereinbelow and the accompanying drawings which are given by way of illustration only, and thus are not to be considered as limiting the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024]

Fig. 1 is a perspective view showing the overall configuration of a gaming machine which is the gaming machine in accordance with an embodiment of the present invention;
Fig. 2 is a front view showing a lower image display of the gaming machine shown in Fig. 1;
Fig. 3 is a perspective view showing a configuration of reels;
Fig. 4 is a perspective view showing one of the reels shown in Fig. 3;
Fig. 5 is a perspective view showing a schematic configuration of a liquid crystal display means as seen from the backside of a cabinet;
Fig. 6 is an exploded perspective view of a part of the liquid crystal display means;
Fig. 7 is a block diagram of the gaming machine focused on its internal configuration;
Fig. 8 is a block diagram showing an image control circuit;
Fig. 9 is a flowchart showing an operation procedure of a main process from the start to end of a game in the gaming machine;
Fig. 10 is a flowchart showing an operation procedure of the lottery process shown in Fig. 9;
Fig. 11 is a flowchart showing an operation procedure of a base game process;
Fig. 12 is a chart showing an example of contents of a stop table;
Fig. 13 is a view showing an example of state where the reels are stopped in the base game process;
Fig. 14 is a view showing an example of the lower image display when stepwise game is performed;
Fig. 15 is a view showing an example of the upper image display when stepwise game is performed;
Fig. 16 is a view showing an example of tile images;
Fig. 17A is a view showing a step of proceeding with a tile game, whereas Fig. 17B is a view showing a step subsequent to Fig. 17A;
Fig. 18A is a view showing a step subsequent to Fig. 17B, whereas Fig. 18B is a view showing a step subsequent to Fig. 18A;
Fig. 19 is a flowchart showing an operation procedure of the tile game;
Fig. 20 is a flowchart showing an operation procedure of a tile arranging process;
Fig. 21 is a flowchart showing an operation procedure of another gaming machine; and
Fig. 22A is a functional block diagram showing an example of CPU 32, whereas Fig. 22B is a chart showing an arrangement management table.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0025] In the following, preferred embodiments of the present invention will be explained in detail with reference to the accompanying drawings. Here, constituents identical or equivalent to each other will be referred to with numerals identical to each other without repeating their overlapping descriptions.

[0026] In the embodiments, a case where the present invention is applied to a gaming machine having variable display means for variably displaying symbols will be explained while taking the following gaming machine 1 by way of example. This gaming machine 1 performs stepwise game by different kinds of game whose contents are different from each other, i.e., the first game for variably displaying a plurality of symbols and the second game for displaying tile images showing a plurality of tiles. Namely, the gaming machine 1 includes a stage of performing the first game, and a stage of performing the second game subsequent thereto. Also, the gaming machine 1 is a coin insertion type gaming machine which requires a coin to be inserted for starting game.

Overall Configuration of Gaming Machine

[0027] Fig. 1 is a perspective view showing the overall configuration of the gaming machine 1. The gaming machine 1 is a gaming machine in accordance with an embodiment of the present invention, and includes variable display means which variably displays a plurality of symbols and allows a slot game using the variable display of a plurality of symbols to be played. The slot game is the first game.

[0028] The gaming machine 1 includes an upper image display 4 and a lower image display 5 successively arranged from the upper side in front of a cabinet 2. The lower image display 5 displays a stepwise game image, which will be explained later, used in the stepwise game and constitutes the display means in the present invention. The lower image display 5 is disposed at substantially the vertical center of the cabinet 2, whereas three mechanical reels 3L, 3C, 3R are arranged rotatablely in a horizontal row within the cabinet 2 so as to correspond to the lower image display 5.

[0029] The reels 3L, 3C, 3R can be seen from the outside through symbol display windows 21L, 21C, 21R of the lower image display 5, which will be explained later. As will later be explained in detail, the reels 3L, 3C, 3R have respective outer peripheries each illustrated with symbol columns having a plurality of kinds of symbols (not depicted), thereby constituting variable display means which are rotatable such that the symbols are displayed variably, each rotating at a fixed speed (e.g., 80 rpm).

[0030] The symbol display windows 21L, 21C, 21R are provided with a horizontally extending pay line L1 so as to correspond to the reels 3L, 3C, 3R as shown in

Fig. 2. Though not depicted, upper and lower pay lines may separately be provided in addition to the pay line L1, and two oblique lines may further be provided. When a plurality of pay lines are provided, it will be preferred if the number of lines varies depending on the number of coins inserted. In this case, the pay lines become individually active in response to the number of inserted coins and operations of BET switches 9, 10 which will be explained later. The active pay lines are referred to as activated lines or pay lines as well. For example, only the center pay line L1 becomes an activated line when a player inserts one coin into a coin insertion slot 6 which will be explained later, the upper and lower pay lines become active in addition to the pay line L1 when two coins are inserted, and all the pay lines become active when three coins are inserted. Though Fig. 2 shows a state where symbols are stopped only on the pay line L1 for easier viewing, each of the symbol display windows 21L, 21C, 21R usually displays three symbols in a vertical row.

[0031] In the gaming machine 1, a substantially horizontal base portion 11 is disposed under the lower display 5. The base portion 11 is provided with the coin insertion slot 6, a bill insertion slot 7, a spin switch 8, a 1-BET switch 9, and a maximum BET switch 10.

[0032] The coin insertion slot 6 is provided in order for a player to insert coins for betting on games, and includes an inserted coin sensor 6a (see Fig. 7) for outputting a signal indicative of the coin insertion. The bill insertion slot 7 is provided in order for the player to insert bills, and includes an inserted bill sensor 7a (see Fig. 7) for outputting a signal indicative of the bill insertion. The spin switch 8 is provided in order for the player to perform an operation for starting a variable display of symbols by rotating the reels 3L, 3C, 3R within the respective symbol display windows 21L, 21C, 21R, i.e., an operation for starting a game. The 1-BET switch 9 is provided for activating a setting for betting one coin by one operation. The maximum BET switch 10 is provided for activating a setting for betting the maximum number of coins that can be bet on one game by one operation.

[0033] At the bottom part of the cabinet 2, the gaming machine 1 is provided with a coin payout opening 13 and a coin receiving tray 14 for collecting the paid-out coins. Further, speakers 12L, 12R are disposed on the left and right sides of the coin payout opening 13, respectively.

Explanation of Image Display Sections

[0034] As shown in Fig. 2, the lower image display 5 includes the symbol display windows 21L, 21C, 21R; frame display windows 22L, 22C, 22R; and a effect image display area 5a. Contents displayed on the lower image display 5 vary depending on the variable display mode and stop mode of the reels 3L, 3C, 3R and contents of actions of a liquid crystal display device 41 which will be explained later. The lower image display 5 is also provided with a BET number display section 16, a payout display section 18, a credit display section 19, etc., which are not depicted in Fig. 2.

[0035] The symbol display windows 21L, 21C, 21R are provided so as to correspond to the reels 3L, 3C, 3R, respectively, and are areas for displaying the symbols illustrated on the reels 3L, 3C, 3R in a recognizable fashion. When the reels 3L, 3C, 3R are in a rotating state or their rotation is stopped, their corresponding symbol display windows 21L, 21C, 21R are displayed in a transparent fashion such that the symbols illustrated on the reels 3L, 3C, 3R being scrolled by the player are recognizable, whereas effect image displaying by still images and moving images, e.g., symbols, letters, figures, marks, and characters, are not displayed.

[0036] The frame display windows 22L, 22C, 22R are disposed so as to surround their corresponding symbol display windows 21L, 21C, 21R, and function as respective display windows for the symbols illustrated on the reels 3L, 3C, 3R.

[0037] The effect image display area 5a displays a tile game image which will be explained later. In addition, the effect image display area 5a displays effect image for enhancing the joy of gaming, and information allowing players to proceed with the gaming advantageously.

[0038] The upper image display 4 changes its contents of display depending on contents of operations of a liquid crystal display device 101 which will be explained later.

Configuration of Reels

[0039] As shown in Fig. 3, the reels 3L, 3C, 3R, each being freely rotatable, are arranged in a horizontal row and have the same configuration. As shown in Fig. 4, the reel 3L comprises a cylindrical frame in which two annular frames 25, 26 having the same form are arranged with a predetermined gap therebetween, and are connected to each other by a plurality of connecting members 27. The reel 3L includes a transmission member 28 for transmitting the driving force of a stepping motor M1 (see Fig. 7) disposed at the center part of the cylindrical frame to the annular frames 25, 26 as shown in Fig. 4, while a reel sheet which is not depicted is attached to a side face part so as to cover the connecting members 27. The reel sheet is illustrated with a plurality of symbols. Though symbols such as those in a stop table 90 shown in Fig. 12 which will be explained later are assumed to be the symbols in the reel sheet here, they are not restrictive as a matter of course. Though not depicted, the reels 3L, 3C, 3R may be provided with an LED-accommodating circuit board and an LED lamp on the backside of horizontal three rows each of symbols appearing in the symbol display windows 21L, 21C, 21R (nine in total) when the reels 3L, 3C, 3R are stopped, respectively. This allows the LED lamp to emit white light from the backside of the reel sheet, so as to illuminate the lower image display 5, thereby effecting

game contents by devising the way of illumination.

Explanation of Liquid Crystal Display Device

[0040] The liquid crystal display device 41 constituting the lower image display 5 will now be explained with reference to Figs. 5 and 6. Fig. 5 is a perspective view showing a schematic configuration of the liquid crystal display device 41 as seen from the backside of the cabinet 2. Fig. 6 is an exploded perspective view of a part of the liquid crystal display device 41.

[0041] The liquid crystal display device 41 is disposed in front of the reels 3L, 3C, 3R while being separated therefrom by a predetermined distance and extending thereover. The liquid crystal display device 41 constitutes a display means of the present invention. The liquid crystal display device 41 comprises a protective glass sheet 42; a display plate 43; a liquid crystal panel 44; a lightguide plate 45; a reflecting film 46; fluorescent lamps 47a, 47b, 48a, 48b which are white light sources; lamp holders 49a to 49h; and a flexible substrate (not depicted) which is connected to a terminal part of the liquid crystal panel 44 and constituted by a table carrier package (TCP) mounted with an IC for driving the liquid crystal panel 44.

[0042] The protective glass sheet 42 and display plate 43 are transparent to light. The protective glass sheet 42 is mainly provided for protecting the liquid crystal panel 44. The display plate 43 is illustrated with a predetermined image which is not depicted.

[0043] The liquid crystal panel 44 is constituted by a transparent substrate such as a glass sheet formed with a thin-film transistor, a transparent substrate opposing the above-mentioned transparent substrate, and a liquid crystal sealed between them, and forms the symbol display windows 21L, 21C, 21R. The liquid crystal panel 44 is configured normally white such that it displays white (light is transmitted on the display surface side and visible from the outside) in a state where no voltage is applied to the liquid crystal (the liquid crystal is not driven), whereby the reels 3L, 3C, 3R are visible from the front side. When the liquid crystal panel 44 configured normally white as such is provided, even if the sealed liquid crystal cannot be driven, the symbols illustrated on the reels 3L, 3C, 3R can be seen through the symbol display windows 21L, 21C, 21R, whereby the player can play game while seeing the variable displays and stop displays of the reels 3L, 3C, 3R.

[0044] The lightguide plate 45 is transparent to light, and is disposed on the backside of the liquid crystal panel 44 in order to guide the light from the fluorescent lamps 47a, 47b to the liquid crystal panel 44.

[0045] The reflecting film 46 is provided in order to reflect the light introduced to the lightguide plate 45 toward the front face of the lightguide plate 45, and is constituted by a white polyester film or aluminum thin film and a silver deposition film formed thereon. The reflecting film 46 includes a reflecting area 46A and a nonreflecting areas 46BL, 46BC, 46BR. The nonreflecting areas 46BL, 46BC, 46BR are made of a transparent material, and are formed as a light-transmitting part which transmits incident light therethrough without reflecting it. The nonreflecting areas 46BL, 46BC, 46BR are formed so as to correspond to the symbol display windows 21L, 21C, 21R, and are each disposed in front of three symbols arranged in a vertical row appearing when their corresponding reels 3L, 3C, 3R are stopped. The reflecting area 46A reflects the incident light, and operates as illuminating means mainly for regions corresponding to the frame display windows 22L, 22C, 22R and effect image display area 5a in the area of the liquid crystal panel 44.

[0046] The fluorescent lamps 47a, 47b are disposed along upper and lower end parts of the lightguide plate 45, and their both ends are supported by their corresponding lamp holders 49a, 49b, 49g, 49h. The florescent lamps 47a, 47b generate light to be introduced into the lightguide plate 45, and operates as illuminating means mainly for regions corresponding to the frame display windows 22L, 22C, 22R and effect image display area 5a in the area of the liquid crystal panel 44.

[0047] The fluorescent lamps 48a, 48b are disposed so as to be directed to the reels 3L, 3C, 3R at upper and lower positions on the backside of the reflecting film 46. Namely, the light emitted from the fluorescent lamps 48a, 48b is reflected by the surfaces of the reels 3L, 3C, 3R, so as to be made incident on the nonreflecting areas 46BL, 46BC, 46BR, thus illuminating the liquid crystal panel 44. Therefore, the fluorescent lamps 48a, 48b act as illuminating means for the symbols disposed on the reels 3L, 3C, 3R, and illuminating means for regions corresponding to the symbol display windows 21L, 21C, 21R in the reflecting film 46.

[0048] The liquid crystal display device 101 has the same configuration as that of the liquid crystal display device 41 except that a touch panel 56 which will be explained later is not disposed in front and that the reels 3L, 3C, 3R are not disposed on the backside.

Internal Configuration of Gaming Machine

[0049] Fig. 7 is a block diagram of the gaming machine 1 focused on its internal configuration. The gaming machine 1 comprises a plurality of constituents centered at a control board 71 including a microcomputer 31. The control board 71 comprises the microcomputer 31, a random number generator 35, a sampling circuit 36, a clock pulse generating circuit 37, a divider 38, a hopper driving circuit 63, a payout completion signal circuit 65, a display section driving circuit 67, a sound generating IC 78, a power amplifier 79, and an image control circuit 81.

[0050] The microcomputer 31 comprises a CPU (Central Processing Unit) 32, a RAM (Random Access Memory) 33, and a ROM (Read Only Memory) 34. The CPU 32 operates as various means characterizing the

present invention according to programs stored in the ROM 34, and inputs/outputs signals from/to other constituents by way of an I/O port 39, thereby controlling operations of the gaming machine 1 as a whole. The RAM 33 stores data and programs used when the CPU 32 operates. For example, the RAM 33 temporarily holds a random number value sampled by the sampling circuit 36, which will be explained later, after a game is started, and stores code numbers of the reels 3L, 3C, 3R and symbol numbers. The ROM 34 stores programs executed by the CPU 32, and permanent data.

[0051] The random number generator 35 operates as instructed by the CPU 32, so as to generate random numbers within a fixed range. As instructed by the CPU 32, the sampling circuit 36 samples a given random number from among the random numbers generated by the random number generator 35, and feeds thus sampled random number to the CPU 32. The clock pulse generating circuit 37 generates a reference clock for operating the CPU 32, whereas the divider 38 feeds the CPU 32 with a signal obtained when dividing the reference clock by a predetermined period.

[0052] A reel driving unit 50 is connected to the control board 71. The reel driving unit 50 includes a reel position detecting circuit 51 for detecting respective positions of the reels 3L, 3C, 3R, and a motor driving circuit 52 for feeding driving signals to motors M1, M2, M3 for rotating the reels 3L, 3C, 3R, respectively. When the driving signals are inputted from the motor driving circuit 52, the motors M1, M2, M3 are actuated, so as to rotate the reels 3L, 3C, 3R, respectively. In addition, the spin switch 8, 1-BET switch 9, maximum BET switch 10, inserted coin sensor 6a, and inserted bill sensor 7a are connected to the control board 71, so that respective signals are inputted therefrom.

[0053] The hopper driving circuit 63 drives a hopper 64 under the control of the CPU 32. The hopper 64 performs an action for paying out coins, whereby the coins are paid out from the payout opening 13. The payout completion signal circuit 65 inputs coin number data from a coin detecting part 66 connected thereto and, when the number reaches a preset value, feeds the CPU 32 with a signal reporting that the payout of coins is completed. The coin detecting part 66 counts the number of coins paid out from the hopper 64, and feeds data of thus counted number to the payout completion signal circuit 65. The display section driving circuit 67 controls display operations of the individual display sections (BET number display section 16, payout display section 18, and credit display section 19).

[0054] The sound generating IC 78 inputs instructions from the CPU 32 and controls sound signals for outputting sounds from the speakers 12L, 12R. The power amplifier 79 inputs and amplifies the sound signals, so as to make the speakers 12L, 12R output the sounds. This allows the speakers 12L, 12R to output sounds, for example, for enhancing the joy of a game at an appropriate period after starting the game.

[0055] Also, the touch panel 56 is connected to the CPU 32. The touch panel 56 is the touch input means in the present invention, and is disposed so as to cover the front face of the protective glass sheet 42 in front of the lower image display 5. The touch panel 56 detects a position (touch position) touched by a contact body such as a finger of a player, and feeds the CPU 32 with corresponding information in conformity to the touch position. For example, the touch panel 56 feeds the corresponding input information corresponding to a give-up key 113, which will be explained later, displayed on the lower image display 5.

[0056] The image control circuit 81 controls respective image displays in the liquid crystal display devices 41, 101, such that the liquid crystal display devices 41 displays tile game images including a tile image 100, a board image 103, the give-up key 113, and the like characterizing the present invention, and that the liquid crystal display device 101 displays a point display section 4d and the like which will be explained later.

[0057] As shown in Fig. 8, the image control circuit 81 includes an image control CPU 81a, a work RAM 81b, a program ROM 81c, an image ROM 81d, a video RAM 81e, and a VDP (Video Display Processor) 81f. In conformity to an image control program (concerning displays in the liquid crystal display devices 41, 101) stored in the program ROM 81c beforehand according to parameters set by the microcomputer 31, the image control CPU 81a determines images to be displayed on the liquid crystal display devices 41, 101. The work RAM 81b is constructed as temporary storage means when the image control CPU 81a executes the image control program.

[0058] The program ROM 81c stores the image control program, various selection tables, etc. The image ROM 81d stores dot data for forming images. The video RAM 81e is constructed as temporary storage means used when images are formed by the VDP 81f. The VDP 81f includes a control RAM 81g, forms images in conformity to respective contents of displays on the liquid crystal display devices 41, 101 determined by the image control CPU 81a, and outputs thus formed images to the liquid crystal display devices 41, 101.

Contents of Operations of Gaming Machine

[0059] Contents of operations of thus configured gaming machine 1 will now be explained with reference to flowcharts shown in Figs. 9 to 11 and 19 to 21. The gaming machine 1 in accordance with this embodiment includes a bonus game in addition to a base game. Though the base game is played, a bonus game advantageous to the player is performed when the game shifts from the base game. In the gaming machine 1, the base game is a slot game in which a plurality of symbols are variably displayed, whereas the bonus game is a tile game proceeding while arranging tile images. The slot game is the first game, whereas the tile game is the sec-

ond game.

[0060] Fig. 9 is a flowchart showing an operation procedure of a main process from the start to end of a game in the gaming machine 1 as being divided into individual blocks. In Figs. 9 to 11 and 19 to 21, steps are abbreviated as S.

[0061] In the gaming machine 1, the CPU 32 as the gaming proceeding control means in the present invention, thereby controlling the proceeding with game. When the main process is started as shown in Fig. 9, the gaming machine 1 performs a start reception process at step 1, and a lottery process at step 2 subsequent thereto. Next, a base game process is performed at step 3 while the game is kept in the base game, and the flow proceeds to step 4. At step 4, in response to the lottery process at step 2, the CPU 32 operates as the shift determining means in the present invention, so as to determine whether a condition (shift condition) for shifting to a bonus game is satisfied or not. If the shift condition is satisfied here, the flow proceeds to step 5; otherwise, the main process ends. At step 5, the CPU 32 operates as the shifting means in the present invention, so as to shift the game to the bonus game, whereby a bonus game process is performed. Thereafter, the main process ends. In the following, details of the individual blocks will be explained.

[0062] First, at the start reception process of step 1, the gaming machine 1 under the control of the CPU 32 receives an operation for starting a game from a player. Since the gaming machine 1 is a coin insertion type gaming machine, for starting the game, the player initially inserts the number of coins to be bet on one game from the coin insertion slot 6, and operates the 1-BET switch 9 or maximum BET switch 10 when credit remains. Subsequently, the player operates the spin switch 8 (these operations being referred to as "starting operation" in the following). This starting operation feeds a start signal from the spin switch 8 to the CPU 32.

[0063] Next, at step 2, the lottery process is performed. When the lottery process is started, the flow proceeds to step 6 shown in Fig. 10, where the CPU 32 performs a symbol determining process. In the symbol determining process, the CPU 32 operates as symbol determining means, so as to determine respective symbols of the reels 3L, 3C, 3R to be stopped at the pay line L1. During the lottery process, the CPU 32 may instruct the image control circuit 81 to cause the liquid crystal display devices 41, 101 to show displays for effecting the game.

[0064] In the lottery process, upon detecting the starting operation of the player by the start signal from the spin switch 8 (i.e., with the advent of the starting of the game), the CPU 32 instructs the random number generator 35 to generate random numbers within a fixed range. Also, the CPU 32 instructs the sampling circuit 36 to sample a given random number from among the random numbers generated by the random number generator 35. When the random number is sampled, the CPU 32 refers to an undepicted symbol determining table (table storing code numbers of symbols in association with the random numbers) stored in the ROM 34 while using the sampled random number as a search key, and acquires the code number of the corresponding symbol.

[0065] Next, setting thus acquired code number as a search key, the CPU 32 refers to the stop table 90 shown in Fig. 12, and retrieves respective symbols displayed on the activated line when the reels 3L, 3C, 3R are stopped.

[0066] Here, as shown in Fig. 12, the stop table 90 is a table including a code number area 90a for storing code numbers (of symbols) and a symbol area 90b for storing respective symbols corresponding to the code numbers, so that, when the code number area 90a is searched through while setting a code number as a search key, corresponding symbols can be retrieved for the reels 3L, 3C, 3R. Individual symbols for the reels 3L, 3C, 3R are registered in association with code numbers of "0" to "10" in the symbol area 90b. For example, C1 in Fig. 12 indicates a symbol combination in which all the acquired code numbers for the reels 3L, 3C, 3R are "0".

[0067] This gaming machine 1 performs three sets in total of the random number sampling and searching of the symbol determining table and stop table 90 for the reels 3L, 3C, 3R, respectively. Namely, the table search is carried out by the number corresponding to that of reels. When respective symbols are determined for the reels 3L, 3C, 3R, reel stopping positions for stopping these symbols at the pay line L1 are determined.

[0068] When the reel stopping positions are determined, the CPU 32 proceeds to step 7, and determines whether winning is attained or not by referring to a winning determining table stored in the ROM 34. The winning determining table registers any of winning symbol combinations and non-winning symbol combinations in association with combinations of code numbers (hereinafter referred to as "code number pattern") in a manner distinguishable from each other. Since a code number pattern corresponding to the reel stopping positions is determined at step 6, reference is made to the winning determining table while setting this code number pattern as a search key, and whether winning is attained or not is determined from the result of the reference.

[0069] Subsequently, the CPU 32 refers to a mode table, and performs a winning symbol arrangement determining process for determining a winning symbol arrangement (which will also be referred to as "winning combination"). The mode table is used for determining a mode of winning (winning symbol arrangement), and registers respective payout amount corresponding to individual winning symbol arrangements. Though not depicted, the mode table has the following contents in this embodiment. For example, a winning combination of "joker (symbol indicated by a in Fig. 12)" means a case where a specific symbol appears. When this symbol ap-

pears at the pay line L1, the game shifts to the bonus game, whereby a bonus game is played (for example, the symbol combination shown in Fig. 2 is displayed on the lower image display 5 at this time). "3BAR-3BAR-3BAR" in which three symbols each comprising vertically aligning three "BARs" (3BAR; symbol indicated by b in Fig. 12) align refers to a payout amount of 5. A winning combination of "7-7-7" means that all the reels 3L, 3C, 3R attain the symbol of "7" (symbol indicated by c in Fig. 12), and is registered with a payout amount of 100 or the like.

[0070] Step 7 also determines the number of bonus games to be played when the result of determination is a bonus game (i.e., when the above-mentioned joker symbol appears). While the gaming machine 1 is adapted to play a tile game, which will be explained later, as the bonus game, the number of tile games to be played is determined at step 7. The lottery process ends with step 7.

[0071] After the lottery process ends, the flow proceeds to step 3 shown in Fig. 9, where a base game process which will be explained later is performed. Here, the reels 3L, 3C, 3R are rotated and then are stopped so as to correspond to the result of lottery at step 2, and coins are paid out according to the winning symbol arrangement when won. Next, at step 4, the CPU 32 determines whether a shift condition for shifting to a bonus game is satisfied or not from the result of the winning symbol arrangement determining process at step 7. When the winning symbol arrangement allows the shift to the bonus game, the flow proceeds to step 5, where a bonus game process is performed. Namely, the game progresses from a stage where the first game is played to a subsequent stage where the second game is played.

Bonus Game Process

[0072] In the gaming machine 1, a tile game is played as a bonus game. At this time, the CPU 32 actuates the image control circuit 81 and controls the proceeding with the tile game in conformity to a flow chart which will be explained later. In the tile game, tile game images including the board image 103 are displayed on the lower image display 5. The tile game proceeds along the flowcharts shown in Figs. 19 and 20. Here, Fig. 19 is a flowchart showing the procedure of the tile game process, whereas Fig. 20 is a flowchart showing the procedure of a tile arranging process.

[0073] Upon starting the tile game process, the CPU 32 proceeds to step 20 of the flowchart shown in Fig. 19, whereby tile game images are displayed on the lower image display 5 as the stepwise game image in the present invention. At step 21 subsequent thereto, other tile game images are displayed on the upper image display 4. Then, an image (operation image) shown in Fig. 14 is displayed on the lower image display 5, whereas an image (various display image) shown in Fig. 15 is displayed on the upper image display 4. At step 22 subsequent thereto, the image control circuit 81 is instructed to display a tile arrangement request message (e.g., "Arrange A Tile At A Favorite Place") onto the lower image display 5. Then, the flow proceeds to step 23, where the tile arranging process is performed. After the completion of the tile arranging process, the tile game ends.

[0074] A tile game image displayed on the lower image display 5 includes the following constituents. Namely, this tile game image includes a board image 103 at the center, and a score display section 110, a line display section 111, and a give-up key (GIVE UP) 113 on the left side thereof. Arranged on the lower side of the board image 103 are a wager display section (WAGER) 114, a prize display section (WIN) 115, a payout display section (PAID) 116, and a credit (CREDIT) display section 117. Disposed on the right side of the board image 103 are a next tile display section (NEXT) 118, a point display section (POINT) 119, and a help key (HELP) 120.

[0075] The board image 103 is an image showing an arrangement board (also referred to as arrangement plate) for the player to arrange tiles indicated by a tile image 100 which will be explained later, and includes a frame 101 forming an outer frame, and a game board 102 disposed therewithin and constituted by a plurality of tile plates 102a, 102b, 102c, ..., each acting as a site to place a tile.

[0076] The score display section 110 displays the total point acquired by the player, whereas the line display section 111 displays the number of completed lines which will be explained later.

[0077] The give-up key 113 is the abandon key in the present invention. As will later be explained in detail, the give-up key 113 allows the player to abandon proceeding with a tile game when operated while playing the tile game. The give-up key 113 makes inputs active under a fixed condition, and changes (e.g., reverse white and black) its display when made active.

[0078] The wager display section 114, prize display section 115, payout display section 116, and credit display section 117 display respective amounts waged, won, paid out, and credited. The next tile display section 118 sequentially displays the tile images 100 of tiles to be arranged, which will be explained later, in conformity to the proceeding with game. The point display section 119 displays the point acquired by the player. The help key 120 is an operation key for displaying explanations concerning gaming contents and the like when operated by the player.

[0079] In the tile game, the player refers to the tile game image, and repeatedly performs an operation (hereinafter referred to as "arrangement operation") in which a tile indicated by the tile image 100 in the next tile display section 118 is arranged at a desirable tile plate 102a, 102b, 102c, ... The tile game is game in which a point is calculated from a tile group constituted by a plurality of tiles finally arranged on the game board 102. Since the tile game proceeds stepwise as the play-

er performs the arrangement operation, the tile game itself is the stepwise game.

[0080] On the other hand, the upper image display 4 comprises a title display section 4a for displaying a title, an odds display section 4b for displaying odds, a effect image display section 4c for displaying an image for effecting the tile game, and a total point display section 4d.

[0081] Then, at step 23 where the tile arranging process is started, the CPU 32 performs the process as follows according to the flowchart shown in Fig. 20.

[0082] After starting the process, the CPU 32 proceeds to step 31, so as to cause the next tile display section 118 to display the tile image 100 indicating a tile (hereinafter referred to as "arrangement tile") to be arranged on the game board 102 by the player.

[0083] Here, the tile image 100 is an image indicating a tile having a regular hexagon, which includes a vertical line 100a, a right oblique line 100b, and a left oblique line 100c as shown in Fig. 16. The vertical line 100a, right oblique line 100b, and left oblique line 100c are illustrated with numbers of "5", "4", and "6", respectively. The respective numbers (hereinafter referred to as "line numbers") attached to the lines form a basis for calculating a point acquirable by the player (as will be explained later in detail).

[0084] The gaming machine 1 provides 19 tile images 100 indicating arrangement tiles (i.e., 19 arrangement tiles are prepared), each comprising the vertical line 100a, right oblique line 100b, and left oblique line 100c with different line numbers attached thereto.

[0085] Next, at step 32, the CPU 32 determines whether the arrangement tile indicated by the tile image 100 displayed on the next tile display section 118 is arranged at the game board 102 or not, i.e., whether the player has performed an arrangement operation or not. When the arrangement tile is arranged at the game board 102 (the player has performed an arrangement operation) here, the flow proceeds to step 33; otherwise, the flow returns to step 31.

[0086] At the time of arrangement operation, the player performs the following operation. Here, the player touches the display position of the tile image 100 in the touch panel 56 with a contact body such as a finger, and moves it on the touch panel 56 to a desirable tile plate 102a, 102b, ... while keeping the contact body in contact therewith. This displays such an image as if the tile image 100 displayed on the next tile image display section 118 moves onto its corresponding tile plate (tile plate 102b in Fig. 17B) in conformity to the player's arrangement operation as shown in Fig. 17A.

[0087] Subsequently, the CPU 32 adds 1 to the tile counter n (counter indicating the number of tiles arranged at the game board 102) at step 33, and proceeds to step 34, so as to determine whether the resulting tile counter n is at least 7 or not. When this condition is satisfied, the flow proceeds to step 35 subsequent thereto, where inputs of the give-up key 113 become active. Therefore, this condition is a condition (hereinafter referred to as "active condition") for making inputs of the give-up key 113 active. When this active condition is satisfied, the flow proceeds to step 35; otherwise, the flow returns to step 31, so as to cause the next tile display section 118 to display the tile image 100 indicating the next arrangement tile, and make the player perform the above-mentioned arrangement operation.

[0088] As the player repeatedly performs the arrangement operation in the manner mentioned above, the gaming proceeds stepwise, so as to display such an image as if the tile image 100 of the arrangement tile displayed on the next tile display section 118 sequentially moves to the tile plates 102a, 102b, ... within the game board 102 as shown in Fig. 17B, along which the tile counter n increases one by one.

[0089] When the active condition of step 34 is satisfied, on the other hand, the flow proceeds to step 35, where an activating process for making inputs of the give-up key 113 active is performed, so that the active give-up key 113 is displayed together with a message (e.g., GIVE-UP KEY OK!) indicating that inputs of the give-up key 113 are active, and the flow proceeds to step 36. Here, it is determined whether there is an input of the give-up key 113 or not. When the player touches the give-up key 113 by a contact body such as a finger, corresponding input information corresponding to the give-up key 113 is fed from the touch panel 56 to the CPU 32, whereby the CPU 32 determines whether or not there is an input from the give-up key 113 according to whether the corresponding input information is inputted or not. When there is an input from the give-up key 113, the flow proceeds to step 37; otherwise, the flow proceeds to step 38.

[0090] The flow proceeds to step 37 when the player operates the active give-up key 113, i.e., when the player gives up further proceeding with game or abandons the proceeding with game after being fed up with game. Here, for minimal point warranty by which the player is provided with the minimal point, the gaming machine 1 automatically arranges the remaining tiles as follows so as to include contents of the stepwise game in progress, i.e., the game performed until the give-up key 113 was operated after starting the tile game. The automatic arrangement of remaining tiles displays such an image as if the tile images 100 of the arrangement tiles left without being arranged at the game board 102 (remaining arrangement tiles) are sequentially arranged into the game board 102 (the image being the post-operation gaming image in the present invention). Here, the CPU 32 performs the automatic proceeding control for causing the lower image display 5 to display the post-operation gaming image without the operation by the player, and clearly shows the player an image used in the stepwise game (post-operation stage) after operating the give-up key 113 until the end.

[0091] Then, at step 38, it is determined whether the tile counter n is "19" or not (i.e., whether all the 19 arrangement tiles are disposed at the game board 102 or

not). When the counter n is "19", the flow proceeds to step 39; otherwise, the flow returns to step 31, where the tile image 100 of the next arrangement tile is displayed on the next tile display section 118.

[0092] At step 39, the CPU 32 operates as the point calculating means, so as to calculate a point according to the arrangement tiles arranged within the game board 102. At step 40 subsequent thereto, the point is displayed at corresponding positions on the upper image display 4 and lower image display 5, whereas payout is effected, whereby the tile arrangement operation is terminated. The point is calculated as follows.

[0093] The flow proceeding to step 39 encompasses a case where the player has arranged all of 19 arrangement tiles at the game board 102 by own operation, and the following case. Namely, it encompasses a case where, at a stage where the player has arranged some arrangement tiles (at least 7 tiles in this embodiment but may be at least 2 tiles) at the game board 102 by own operation, the proceeding with game is abandoned by an input from the give-up key 113, whereby the remaining tiles are automatically arranged. As mentioned above, the automatic arrangement of remaining tiles arranges all the 19 arrangement tiles at the game board 102. Therefore, both cases are the same in that all the 19 arrangement tiles are arranged, whereby an image of a state where the game board 102 is completely filled with 19 tile images 100 is displayed as shown in Fig. 18B.

[0094] Each tile image 100 comprises a vertical line 100a, a right oblique line 100b, and a left oblique line 100c which are provided with respective line numbers. When a plurality of tiles are arranged, the lines in the tiles may connect with each other vertically, horizontally, or obliquely. Therefore, the CPU 32 finds out thus connected lines (which are complete lines, whose number is displayed on the line display section 111), and sums up the respective line numbers attached onto the lines, thereby calculating a point.

[0095] In this case, for example, the CPU 32 can search through an arrangement management table 200 provided in the RAM 33, and calculate the point according to the result of search. The arrangement management table 200 is the arrangement state registering means in the present invention, comprises an arrangement presence/absence area 200a and an attribute information area 200b as shown in Fig. 22B, and registers information used for managing the state of arrangement of arrangement tiles in the game board 102. The arrangement presence/absence area 200a registers information indicating whether an arrangement tile is disposed or not at each of the tile plates 102a, 102b, 102c, ... in the game board 102 ("1" and "0" indicating the presence and absence of arrangement tiles, respectively, in Fig. 22B). The attribute information area 200b registers attribute information of the arrangement tiles arranged (respective line numbers of the vertical line 100a, right oblique line 100b, and left oblique line 100c). Each time the player performs an arrangement operation, the CPU 32 updates the arrangement management table 200, thereby managing the state of arrangement of arrangement tiles.

[0096] For calculating the point, the CPU 32 finds out a complete line by using the information registered in the arrangement management table 200, and sums up the line numbers attached to the lines. Namely, as shown in Fig. 22A, the CPU 32 has functions of arrangement table updating means 32a for updating the arrangement management table 200, arrangement table reading means 32b for reading the information registered in the arrangement management table 200, complete line search means 32c for finding out complete lines, and line number adding means 32d for summing up line numbers.

[0097] Therefore, even when the player inputs the give-up key 113, if a complete line constituted by the arrangement tiles 100 arranged until then is obtained, the point will be calculated by acquiring this complete line. Hence, even if the player abandons the proceeding with game after operating the give-up key 113, contents of proceeding of game performed until the operation of give-up key 113 from starting the tile game will be reflected in the point calculation, whereby the contents of gaming with which the player has proceeded will not be wasted. Hence, even the player having abandoned the game is left with room for payouts such as points, the coins inserted by the player are not wasted but effectively used. As a consequence, the player will not be unsatisfied with the game.

[0098] Preferably, the gaming machine 1 directly returns the calculated point to the player. Namely, it will be preferred if the CPU 32 operates as the payout calculating means at step 40, so as to determine the number of payout according to the calculated point and instruct the hopper driving circuit 63 to pay out the number of coins corresponding to the number of payout. This pays out coins according to the calculated point, whereby payouts are returned to the player.

[0099] In particular, when step 37 is executed so as to perform automatic proceeding control, thereby automatically arranging the remaining tiles, the automatically arranged tiles are also acquired in the point calculation regardless of operations by the player. The tiles arranged by the player before automatic arrangement may fail to yield a point when lacking line connections. However, the automatic arrangement may control the tile arrangement such as to provide a line connection securing a minimal point, whereby the player can be assured of the minimal point. Also, since the post-operation gaming image is displayed on the lower image display 5 when the remaining tiles are automatically arranged, a procedure of arranging tiles so as to acquire the minimal point is clearly shown to the player. This is also advantageous for exhibiting the role of attracting the interest of the player and when the player learns contents of game. Of course, the tiles may be arranged so

as not to provide a point, or so as to yield a maximum point.

[0100] After operating the give-up key 113, the flow may directly proceed from step 36 to step 39 without performing step 37. Even in this case, if a line connection is achieved in the arrangement tiles 100 arranged until the player operates the give-up key 113, the point can be calculated by acquiring the complete line, whereby the game performed so far will not be wasted. This allows the inserted coins to be used effectively, thus exhibiting the same operation and effect in that the coins can be utilized effectively.

[0101] When the base game process is started at step 3 mentioned above, on the other hand, a slot game is played. Here, step 10 shown in Fig. 11 is initially performed, whereby a rotating process is executed. Namely, the CPU 32 instructs the motor driving circuit 52 to actuate the motors M1, M2, M3. Then, the reels 3L, 3C, 3R rotate. Subsequently, at step 11, the CPU performs a stop control process so as to respond to the result of determination at step 6. Namely, when a predetermined time has passed after starting actuating the reels 3L, 3C, 3R, the CPU 32 outputs an instruction to the motor driving circuit 52, so as to stop the reels 3L, 3C, 3R such that the symbols determined by step 6 appear at the pay line L1. In the stop control process, the CPU 32 outputs an instruction to the motor driving circuit 52, so as to stop the reels automatically. Since the gaming machine 1 includes three reels 3L, 3C, 3R, it performs three operations of determining stop positions of the reels (determining symbols to stop on the pay line). Namely, a stop position is determined for each reel.

[0102] This stop control process sequentially stops the reels 3L, 3C, 3L, as shown in Fig. 13 for example, such that the symbol of "7" appears in each of the symbol display windows 21L, 21C, 21R, whereby a symbol combination of "7-7-7" appears. Then, the flow proceeds to step 12, where a payout process is performed. Thereafter, the base game process ends. When the payout process is started, the CPU 32 instructs the hopper driving circuit 63 to pay out coins by a number corresponding to the number of payout (payout amount) determined by step 7, whereby the coins are paid out from the hopper 64. When it is determined from a signal from the payout completion signal circuit 65 that the coins are paid out, the CPU 32 terminates the payout process.

[0103] The above-mentioned embodiment proceeds with stepwise game by playing a slot game and a tile game as the first game and second game, respectively. The first game may also be any of games other than the slot game, e.g., card games such as poker and blackjack played by displaying card images, or a mahjong game.

[0104] When the stepwise game is constituted by different kinds of game such as the first game and second game, the first game may be the tile game while the second game is the slot game, for example, so that the first game is stepwise game, in addition to the case where the second game is the stepwise game. Of course, the first game and second game may be different kinds of stepwise game whose contents differ from each other.

[0105] Since the tile game itself is stepwise game in which game proceeds while arrangement tiles are successively arranged, the first game may be a tile game without playing the second game (such that only the tile game is played). The CPU 32 operates as the gaming proceeding control means in this case as well, and controls the proceeding with game as shown in Fig. 21, since a coin is required to be inserted for starting game.

[0106] First, at step 50, a coin insertion or an operation of a BET switch is waited for. Upon the operation of the BET switch, the flow proceeds to step 20, and subsequent steps are processed up to step 23 as mentioned above.

[0107] Though the above-mentioned embodiment relates to the gaming machine 1 including the mechanical reels 3L, 3C, 3R by way of example, the present invention is also applicable to pachislo machines including mechanical reels 3L, 3C, 3R as a matter of course.

[0108] The gaming machine in accordance with the present invention does not always need gaming with mechanical reels, whereby the present invention is also applicable to gaming machines (not depicted) including the upper image display 4 and lower image display 5 without the mechanical reels 3L, 3C, 3R. For example, the present invention is also applicable to gaming machines (video slot machines) which can play the above-mentioned slot game by causing the lower image display 5 to display a reel image indicating a reel having a plurality of symbols as an image used in the gaming, card gaming machines which can play card games by displaying card images, and mahjong gaming machines which can play mahjong games.

[0109] Though three reels are arranged in a horizontal row in the gaming machine 1, the number of reels is not restricted to 3. The number of reels may be 5 or 9, for example.

[0110] The present invention is also applicable to gaming machines mounted with display devices capable of displaying images (e.g., display devices using organic EL) other than the liquid crystal display devices 41, 101.

[0111] Though the gaming machine 1 is a coin insertion type gaming machine which requires a coin to be inserted for starting the gaming, the present invention is also applicable to gaming machines necessitating the use of credits such as coins or money information stored in prepaid cards for starting the gaming.

[0112] As explained in detail in the foregoing, the present invention can provide a gaming machine requiring a gaming medium for starting game, which effectively utilizes the gaming medium such as coin used by the player even when the player abandons proceeding with the gaming, thereby keeping the playability from being lost.

[0113] It is apparent that various embodiments and

modifications of the present invention can be embodied, based on the above description. Accordingly, it is possible to carry out the present invention in the other modes than the above-mentioned best mode, within the following scope of claims and the scope of equivalents.

Claims

1. A gaming machine comprising gaming proceeding control means for controlling stepwise game proceeding stepwise from starting to ending, and requiring a gaming medium for starting the game;

the gaming machine further comprising:

an abandon key for a player to abandon the proceeding with the stepwise game while playing the stepwise game; and

point calculating means for calculating, when the abandon key is operated by the player, a point acquired by proceeding with the stepwise game from the starting of the stepwise game until the abandon key is operated.

2. A gaming machine according to claim 1, further comprising display means for displaying an image used in the game;

wherein the gaming proceeding control means performs automatic proceeding control causing the display means to display a post-operation stage image used in a post-operation stage after the operation of the abandon key in the stepwise game until the ending without an operation by the player, so as to proceed with the post-operation stage.

3. A gaming machine according to claim 1 or 2, further comprising a display means for displaying an image used in the game, and variable display means for variably displaying plurality of symbols in a plurality of columns;

wherein the gaming proceeding control means performs first game by causing the variable display means to variably display the plurality of symbols, and thereafter performs second game by causing the display means to display a tile image indicating a plurality of tiles and a board image indicating a board for arranging the tiles indicated by the tile image, so as to proceed with the stepwise game.

4. A gaming machine according to any of claims 1 through 3, further comprising payout calculating means for determining the payout according to the point calculated by the point calculating means.

5. A gaming machine according to claim 3, further comprising arrangement state registering means for managing a state of arrangement of the tiles within the board, the point calculating means calculating the point by using information registered in the arrangement state registering means.

6. A gaming machine comprising display means for displaying an image used in game; shift determining means for determining whether a shift condition for shifting a game from a base game to a bonus game is satisfied or not; and shifting means for shifting the game from the base game to the bonus game according to a result of determination by the shift determining means; the gaming machine requiring a gaming medium for starting the gaming;

the gaming machine further comprising:

touch input means, disposed in front of the display means, for inputting corresponding input information corresponding to a touch position of a finger;

gaming proceeding control means controlling proceeding with the stepwise game proceeding stepwise from the starting to ending after the shifting means shifts the game to the bonus game by causing the display means to display a stepwise game image used in the stepwise game including an abandon key image indicating an abandon key for a player to abandon the proceeding with the stepwise game while playing the stepwise game; and

point calculating means for calculating, when corresponding input information corresponding to the abandon key information is inputted from the touch input means, a point acquired by proceeding with the stepwise game from the starting of the stepwise game until the corresponding input information is inputted.

7. A gaming machine according to claim 6, wherein the gaming proceeding control means performs automatic proceeding control for proceeding with a post-operation stage after the input of the corresponding input information corresponding to the abandon key image until the ending without an operation by the player.

8. A gaming machine according to claim 7, wherein the gaming proceeding control means causes the display means to display a post-operation stage image used in the post-operation stage corresponding to the post-operation stage proceeds.

9. A gaming machine according to any of claims 6 through 8, wherein the gaming proceeding control means causes the display means to display as the stepwise game image a tile image indicating a plurality of tiles and a board image indicating a board for arranging the tiles indicated by the tile image;

and

wherein the point calculating means calculates the point by using the tile image indicating the tiles arranged within the board indicated by the board image.

10. A gaming machine according to any of claims 6 through 9, further comprising payout calculating means for determining the payout according to the point calculated by the point calculating means.

11. A gaming machine according to claim 9, further comprising arrangement state registering means for managing a state of arrangement of the tiles within the board, the point calculating means calculating the point by using information registered in the arrangement state registering means.

Fig.1

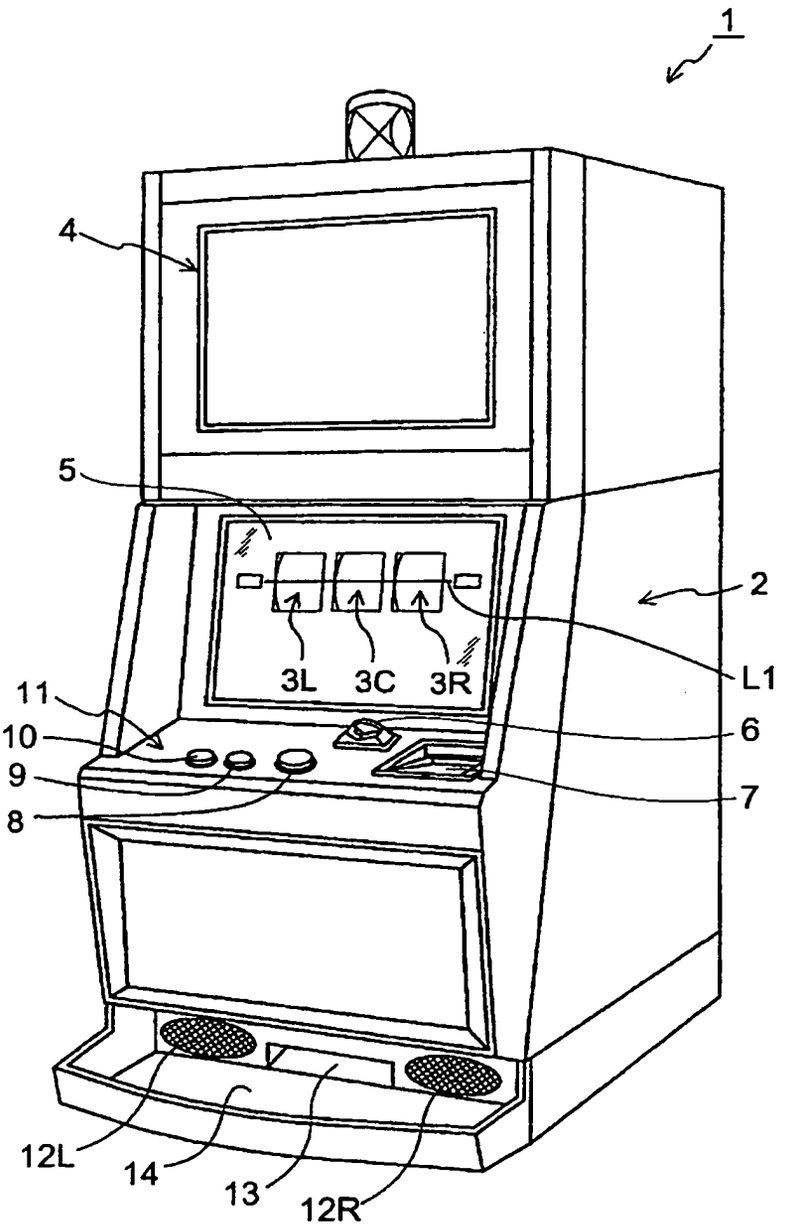


Fig.2

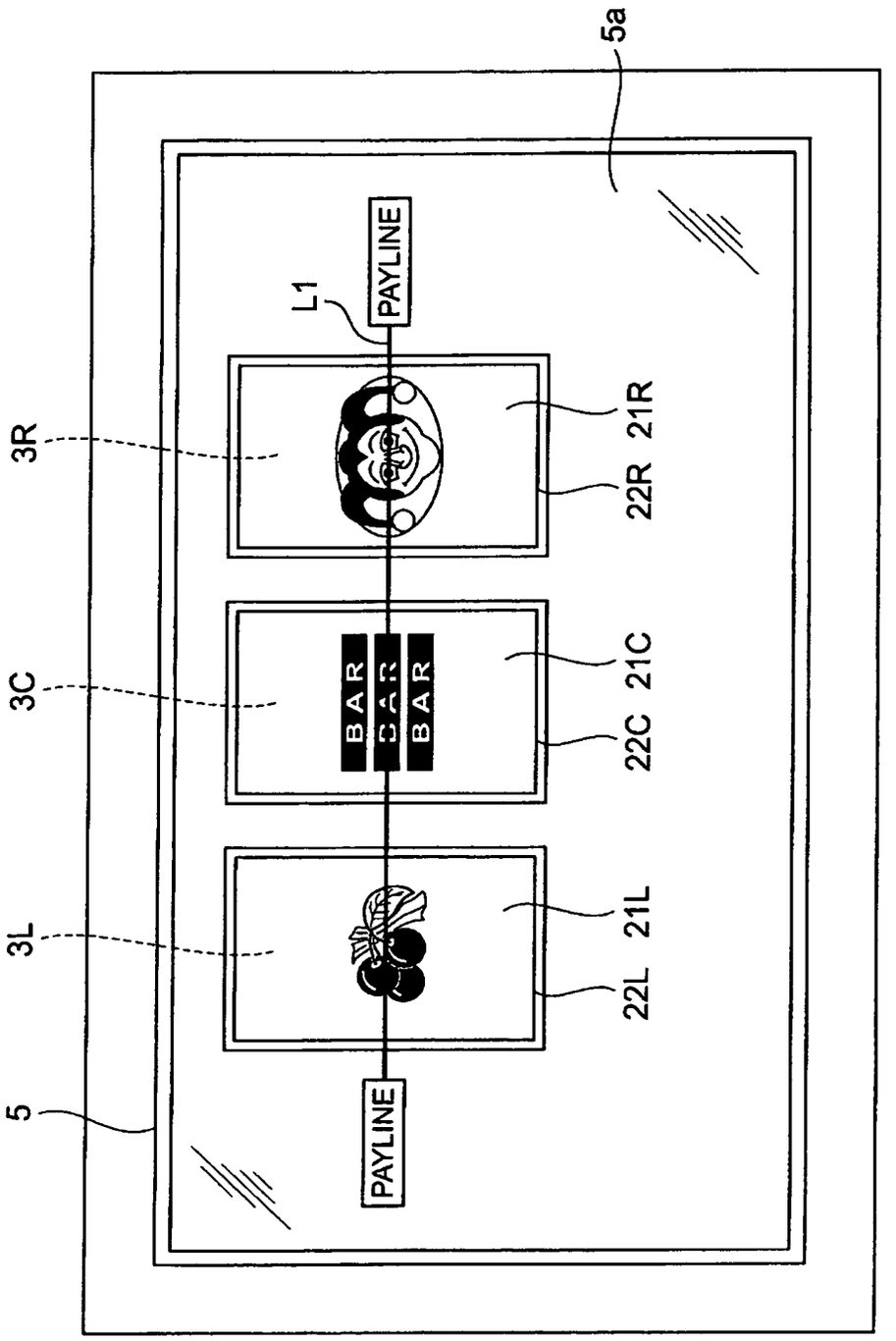

5a
PAYLINE
L1
3R
21R
22R
BAR
BAR
BAR
3C
21C
22C
3L
21L
22L
5
PAYLINE

Fig.3

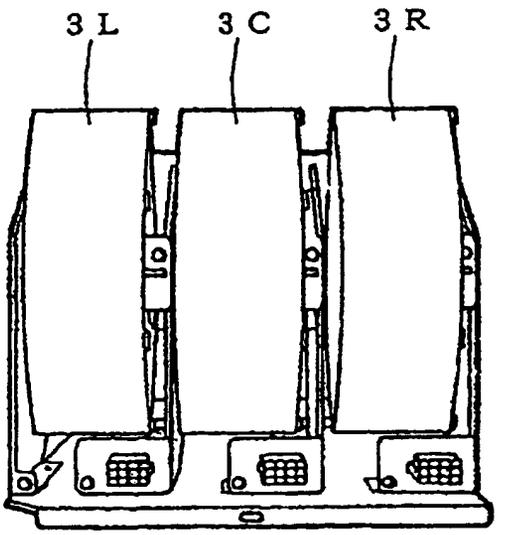


Fig.4

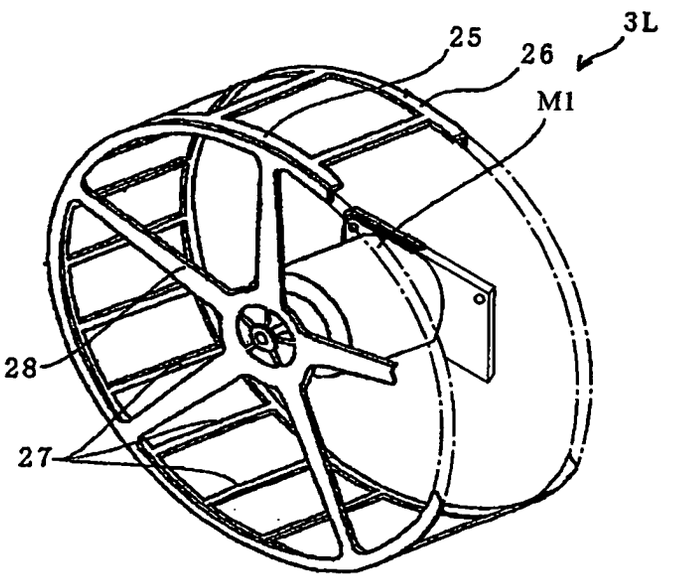
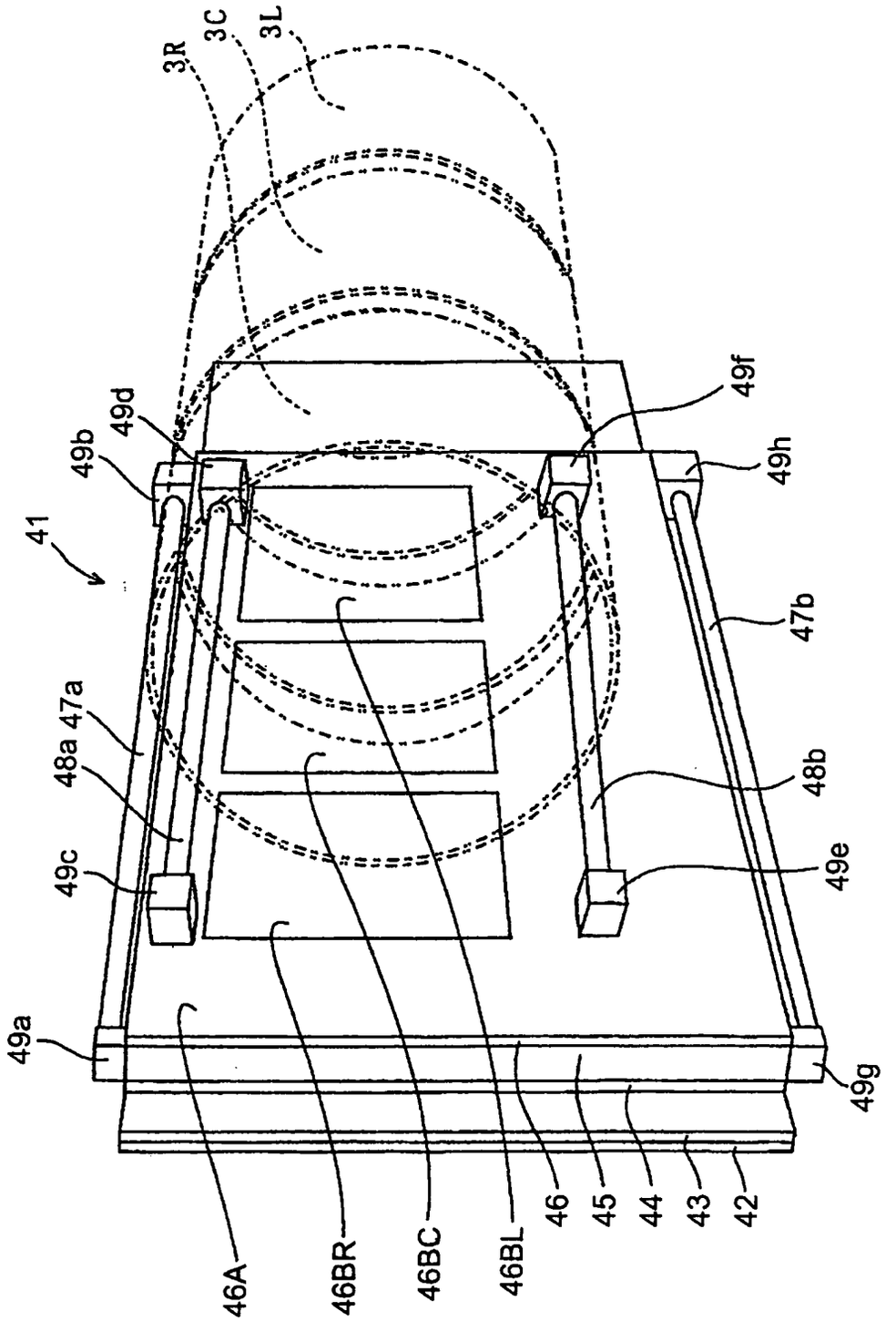


Fig.5


3R
3C
3L
49d
49b
41
49f
49h
47b
47a
48a
48b
49c
49e
49a
49g
46A
46BR
46BC
46BL
46
45
44
43
42

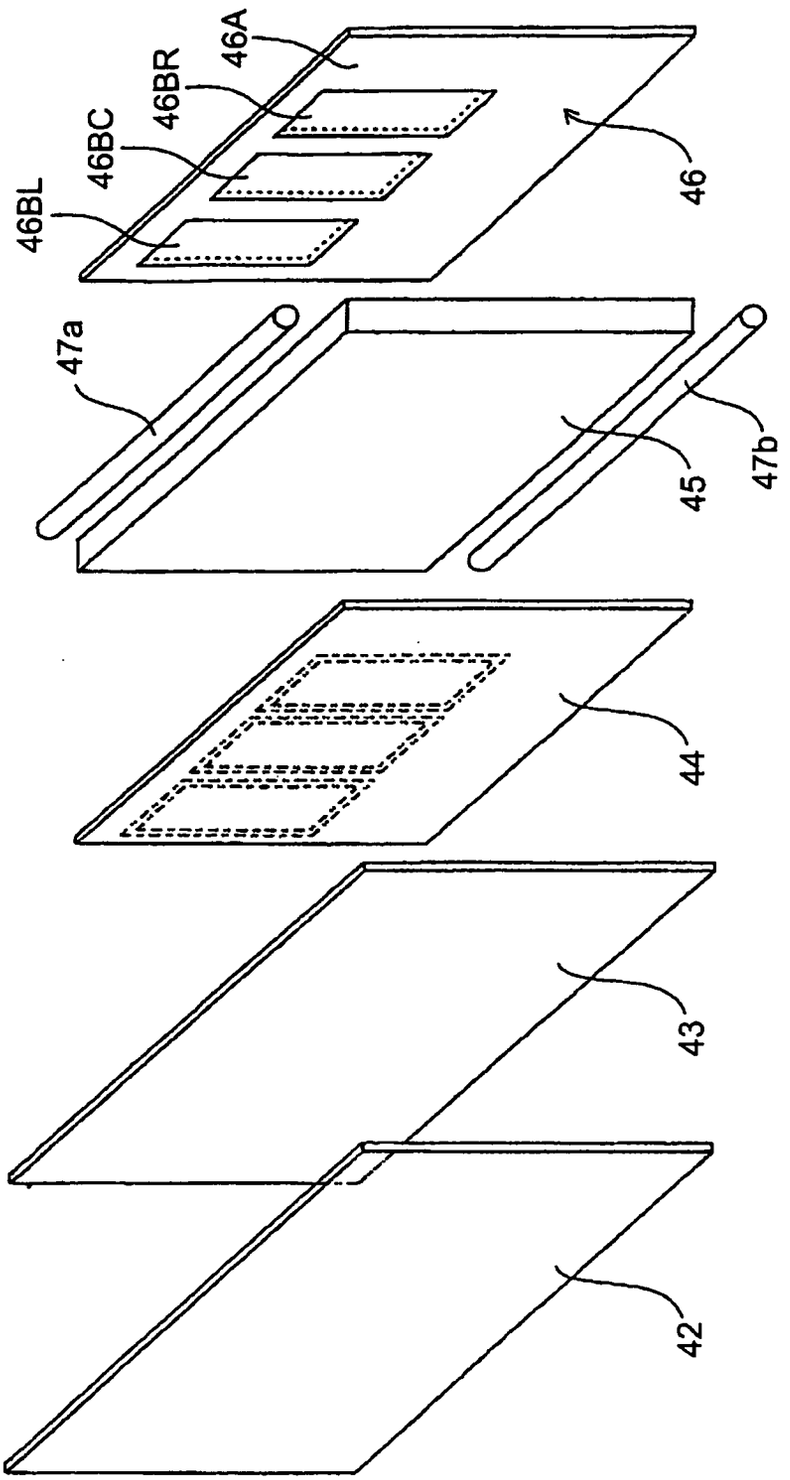


Fig.6

Fig.7

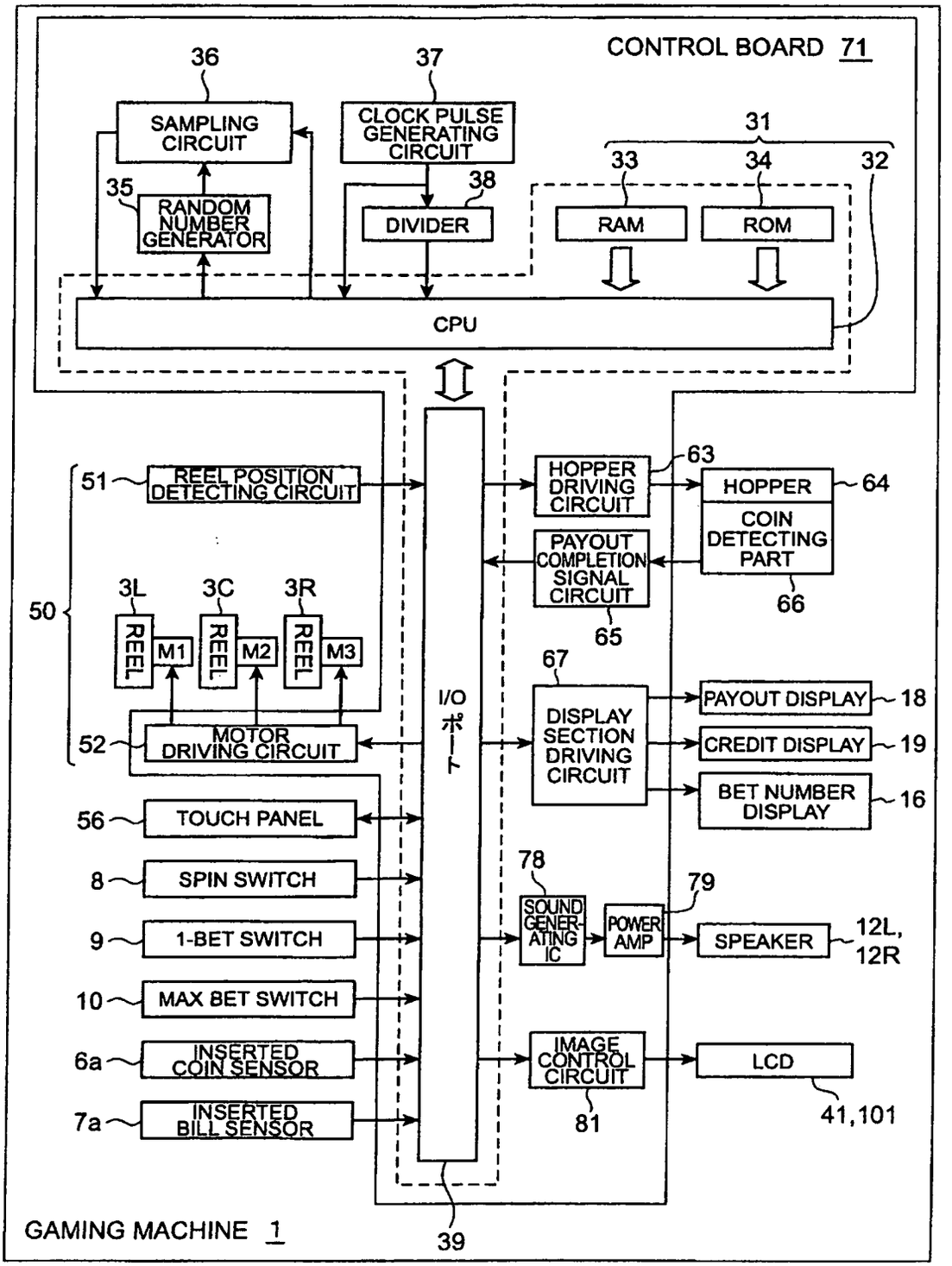

CONTROL BOARD 71
36
SAMPLING CIRCUIT
37
CLOCK PULSE GENERATING CIRCUIT
31
33
34
32
35
RANDOM NUMBER GENERATOR
38
DIVIDER
RAM
ROM
CPU
51
REEL POSITION DETECTING CIRCUIT
63
HOPPER DRIVING CIRCUIT
HOPPER
64
COIN DETECTING PART
66
PAYOUT COMPLETION SIGNAL CIRCUIT
65
50
3L
3C
3R
REEL
M1
M2
M3
67
I/O ポート
DISPLAY SECTION DRIVING CIRCUIT
PAYOUT DISPLAY
18
CREDIT DISPLAY
19
BET NUMBER DISPLAY
16
52
MOTOR DRIVING CIRCUIT
56
TOUCH PANEL
78
79
8
SPIN SWITCH
SOUND GENERATING IC
POWER AMP
SPEAKER
12L, 12R
9
1-BET SWITCH
10
MAX BET SWITCH
6a
INSERTED COIN SENSOR
IMAGE CONTROL CIRCUIT
LCD
7a
INSERTED BILL SENSOR
81
41,101
GAMING MACHINE 1
39

Fig.8

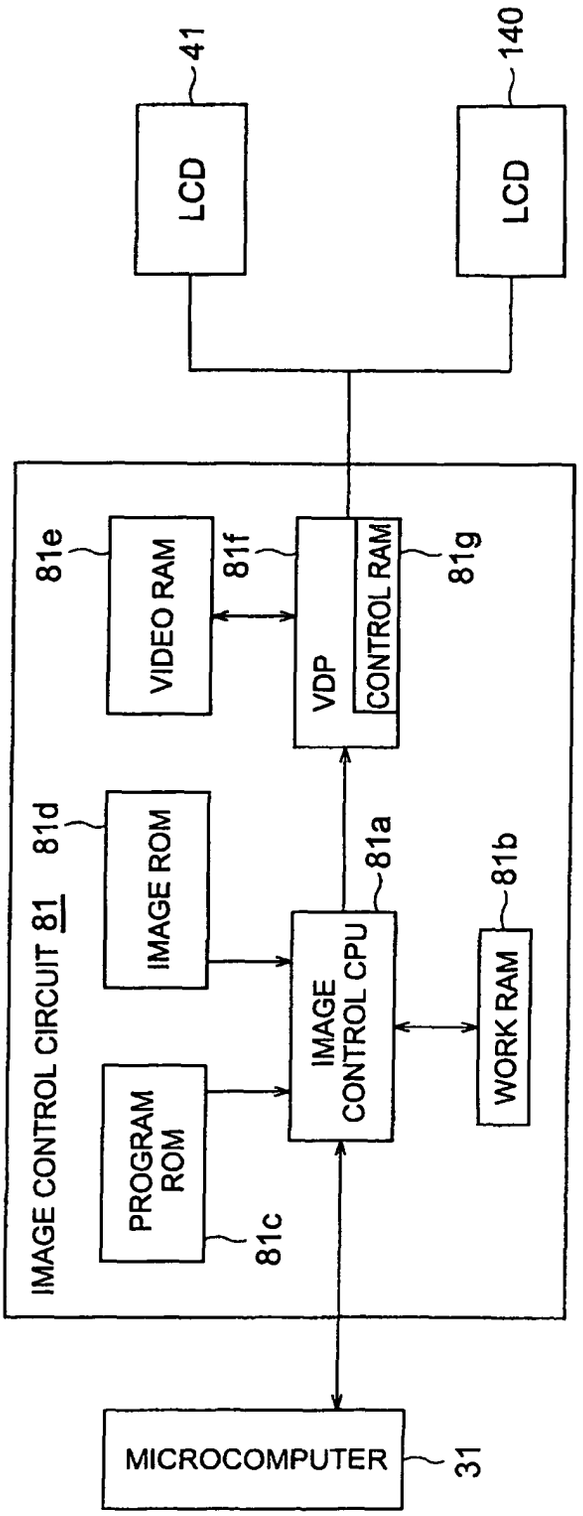

LCD
41
LCD
140
IMAGE CONTROL CIRCUIT 81
81e
VIDEO RAM
81f
VDP
CONTROL RAM
81g
81d
IMAGE ROM
81a
IMAGE CONTROL CPU
81b
WORK RAM
PROGRAM ROM
81c
MICROCOMPUTER
31

Fig.9

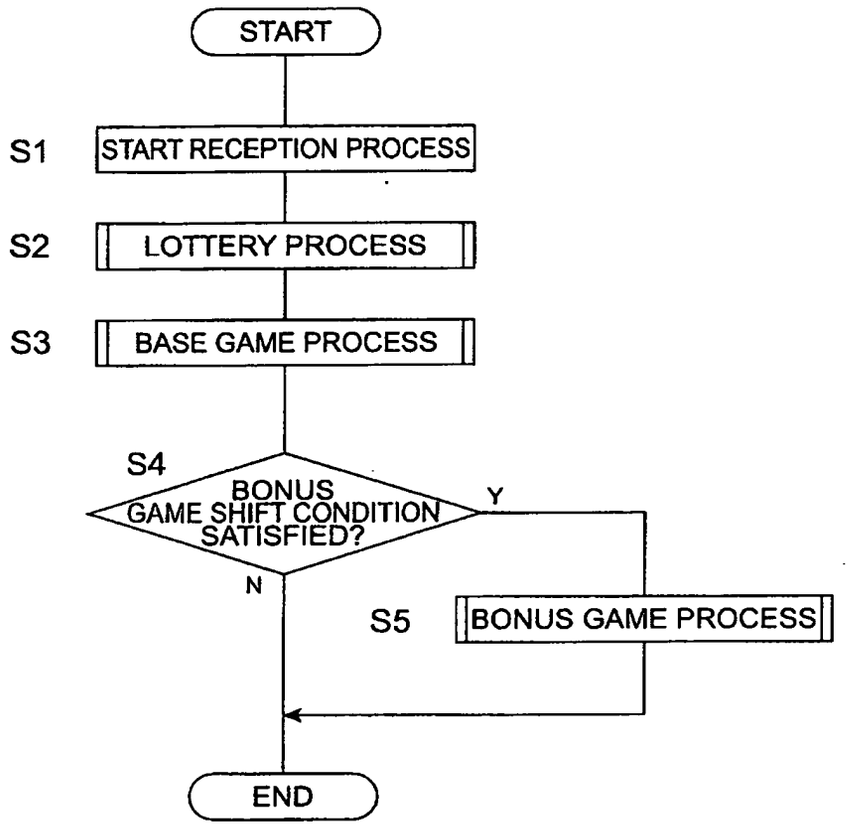

START
S1
START RECEPTION PROCESS
S2
LOTTERY PROCESS
S3
BASE GAME PROCESS
S4
BONUS GAME SHIFT CONDITION SATISFIED?
Y
N
S5
BONUS GAME PROCESS
END

Fig.10

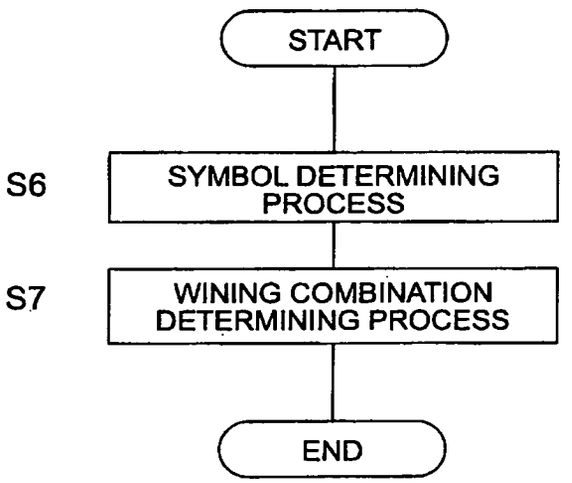

START
S6
SYMBOL DETERMINING PROCESS
S7
WINING COMBINATION DETERMINING PROCESS
END

Fig.11

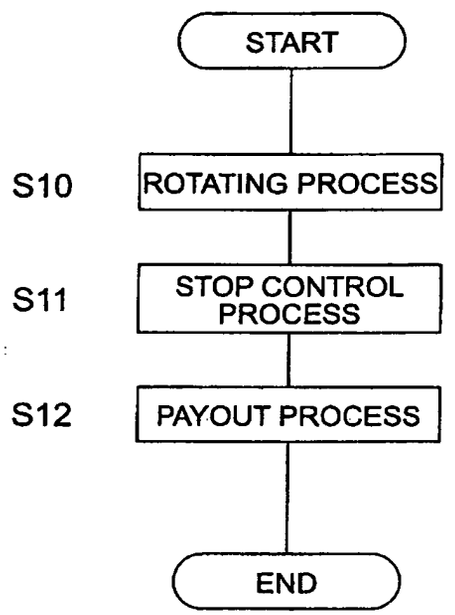

START
S10
ROTATING PROCESS
S11
STOP CONTROL PROCESS
S12
PAYOUT PROCESS
END

Fig.12

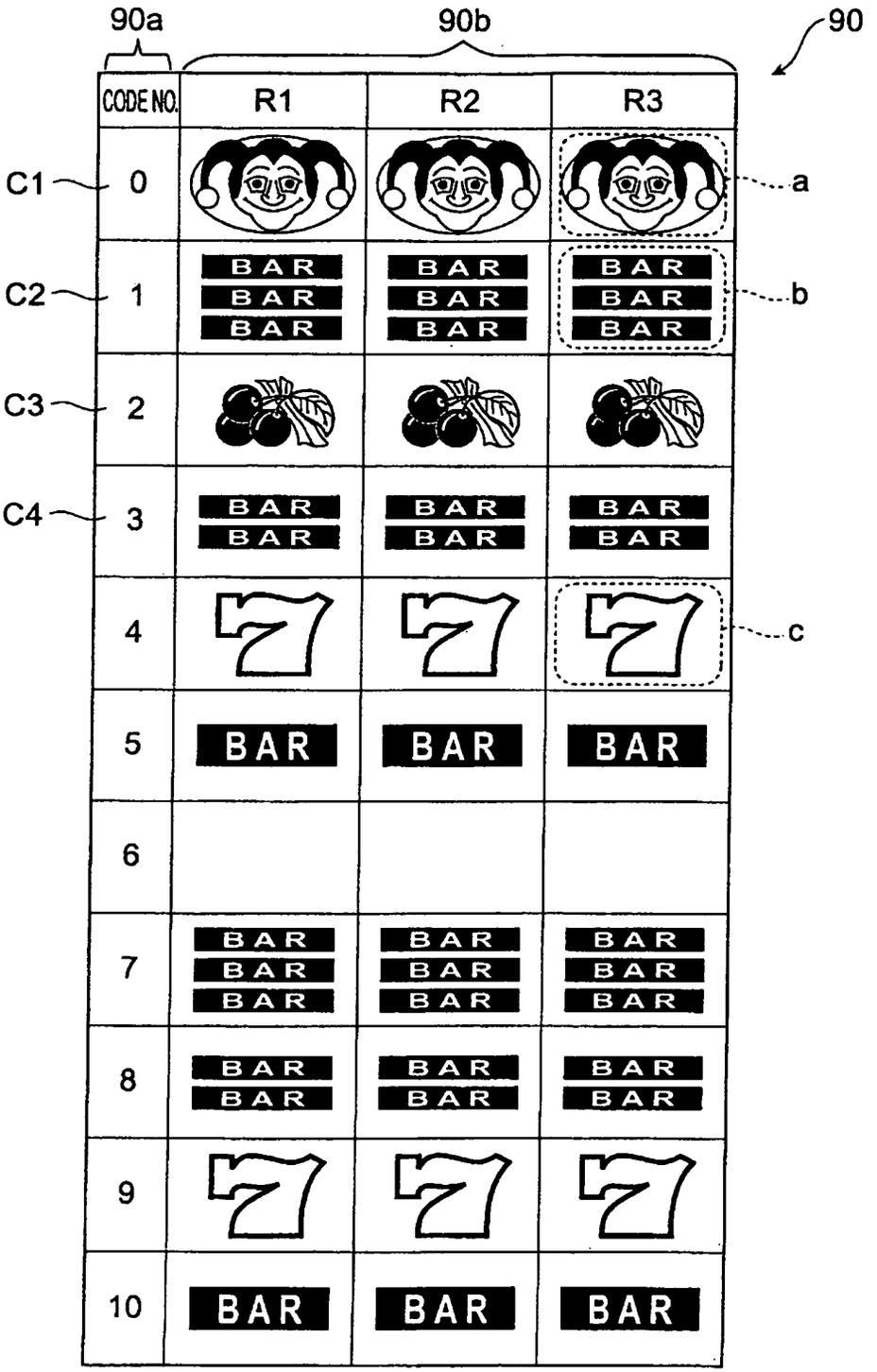
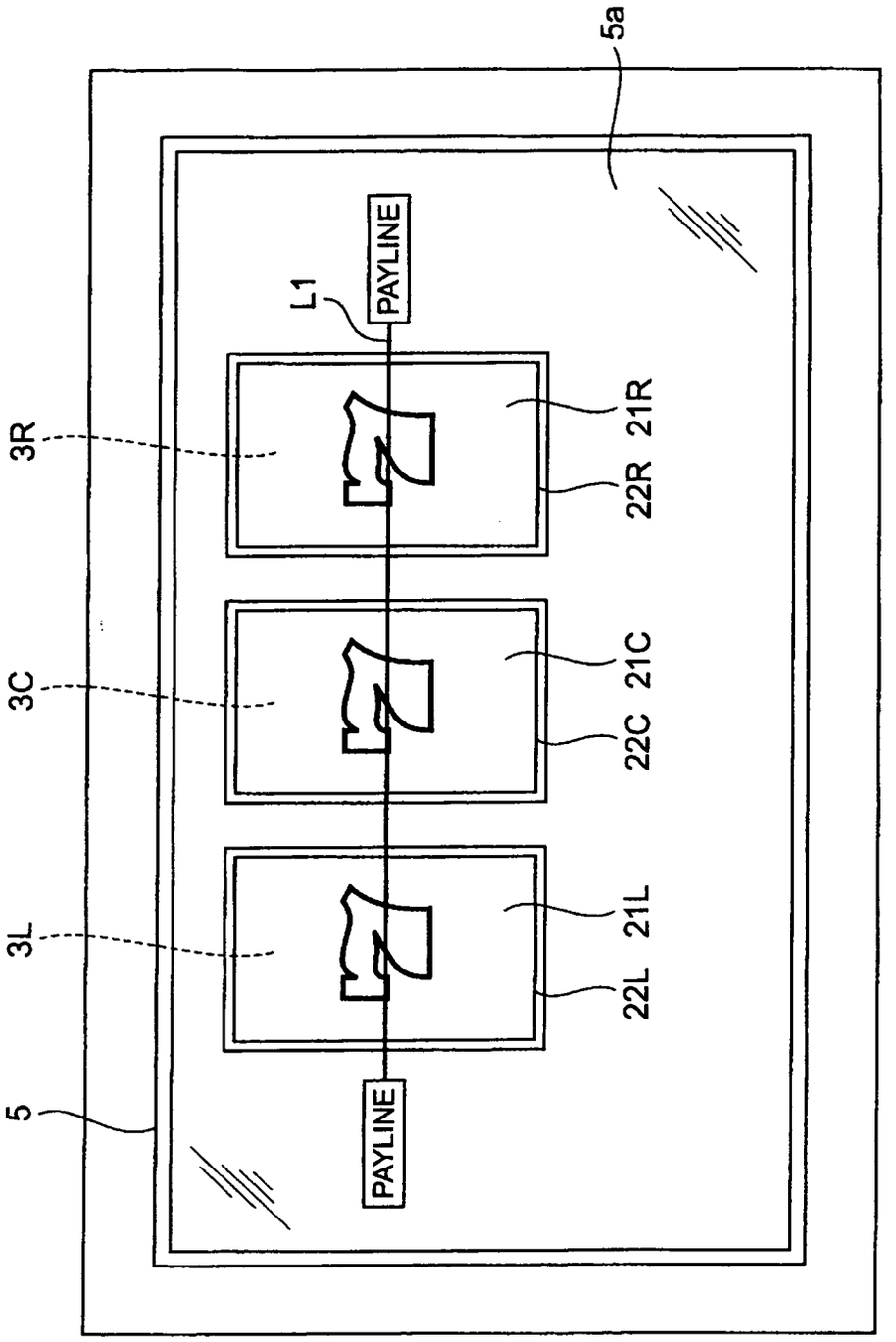


Fig.13



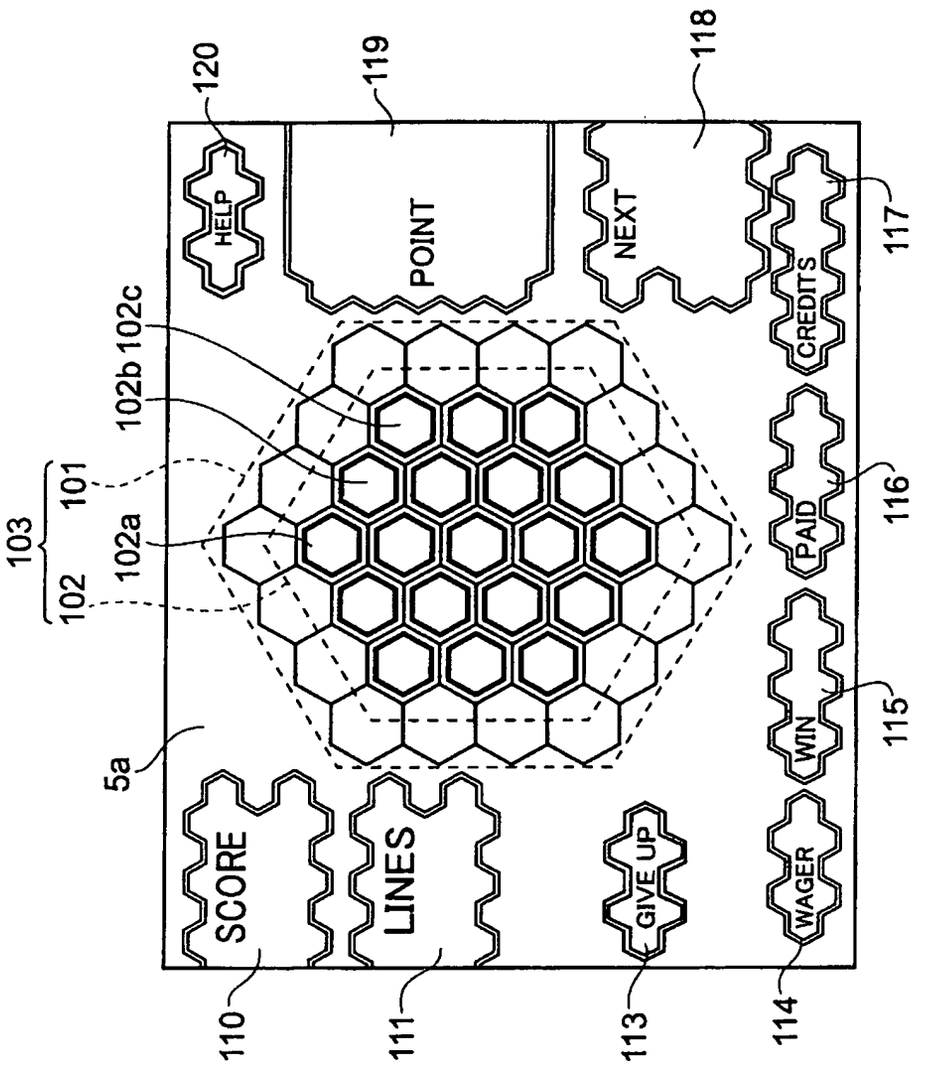

120
119
118
HELP
POINT
NEXT
CREDITS
117
102b 102c
101
103
102a
102
PAID
116
WIN
115
5a
SCORE
LINES
GIVE UP
WAGER
110
111
113
114

Fig.14

Fig.15

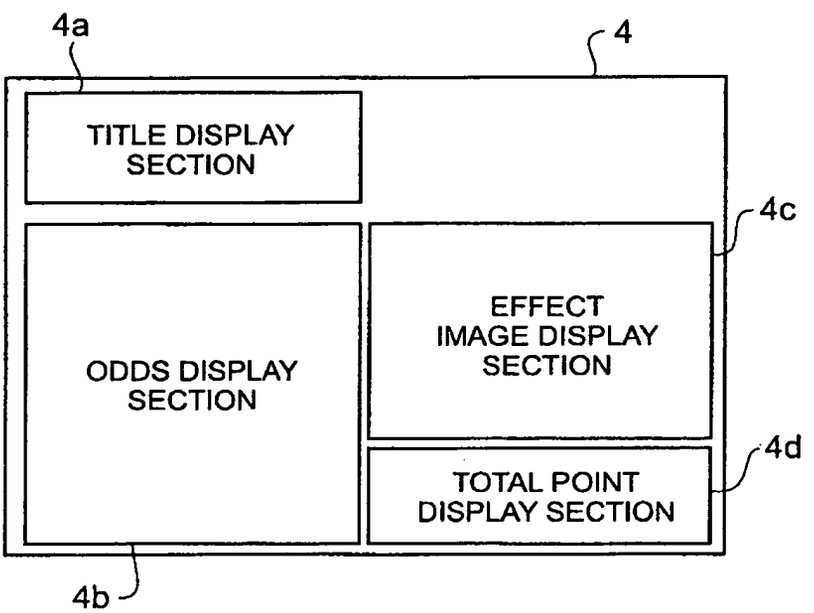

4a
4
TITLE DISPLAY SECTION
4c
ODDS DISPLAY SECTION
EFFECT IMAGE DISPLAY SECTION
4d
TOTAL POINT DISPLAY SECTION
4b

Fig.16

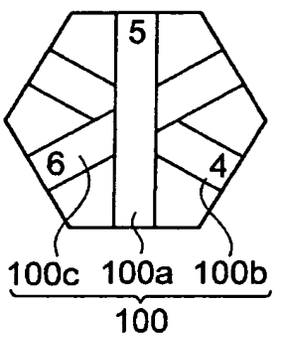


Fig.17A

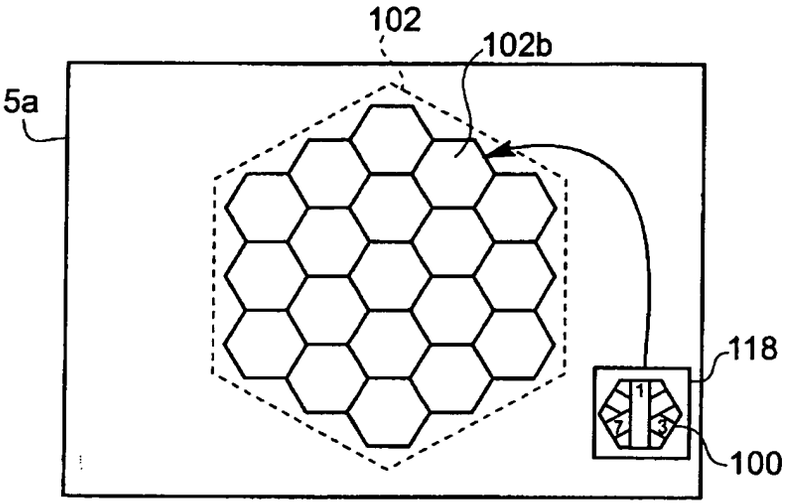


Fig.17B

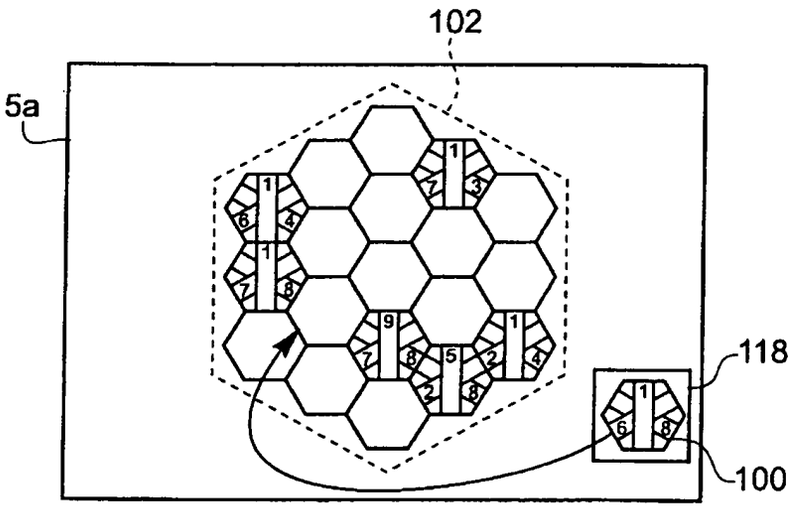


Fig.18A

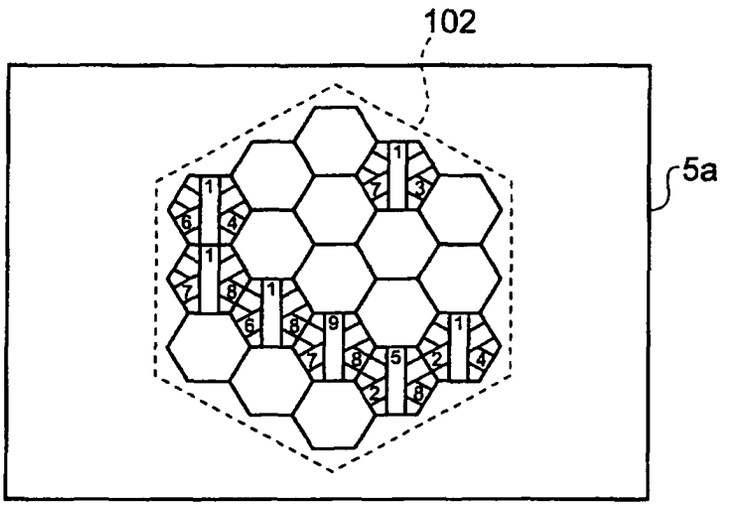


Fig.18B

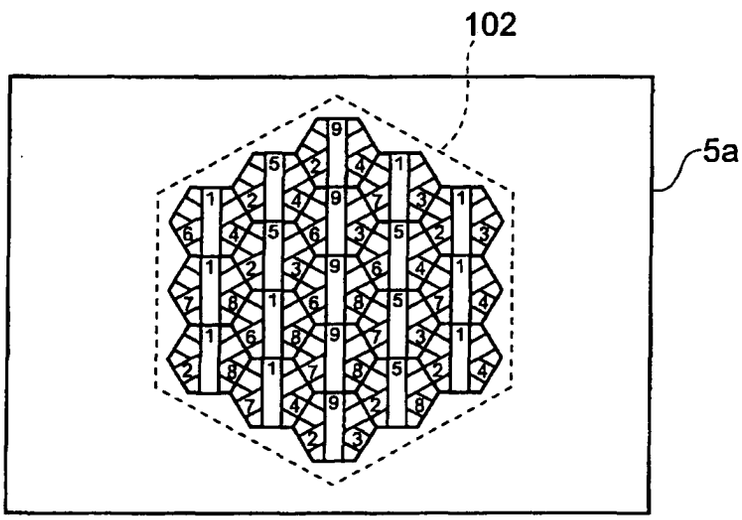


Fig.19

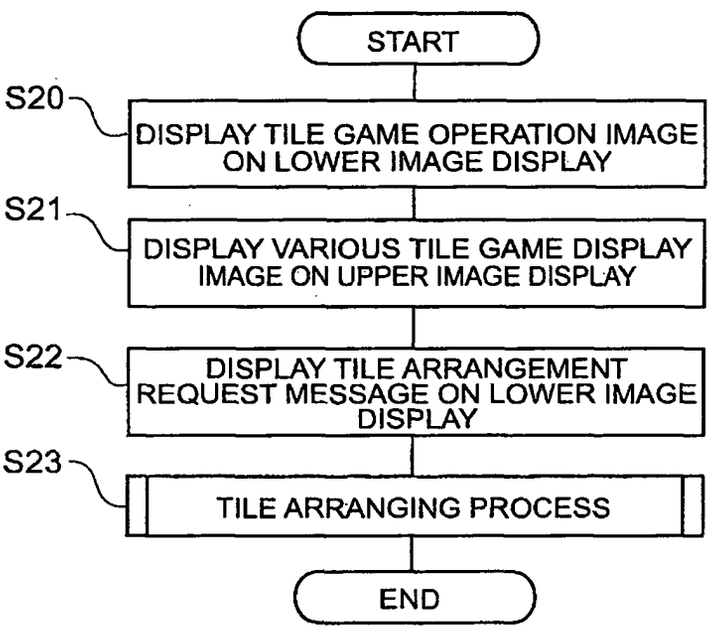

START
S20
DISPLAY TILE GAME OPERATION IMAGE ON LOWER IMAGE DISPLAY
S21
DISPLAY VARIOUS TILE GAME DISPLAY IMAGE ON UPPER IMAGE DISPLAY
S22
DISPLAY TILE ARRANGEMENT REQUEST MESSAGE ON LOWER IMAGE DISPLAY
S23
TILE ARRANGING PROCESS
END

Fig.20

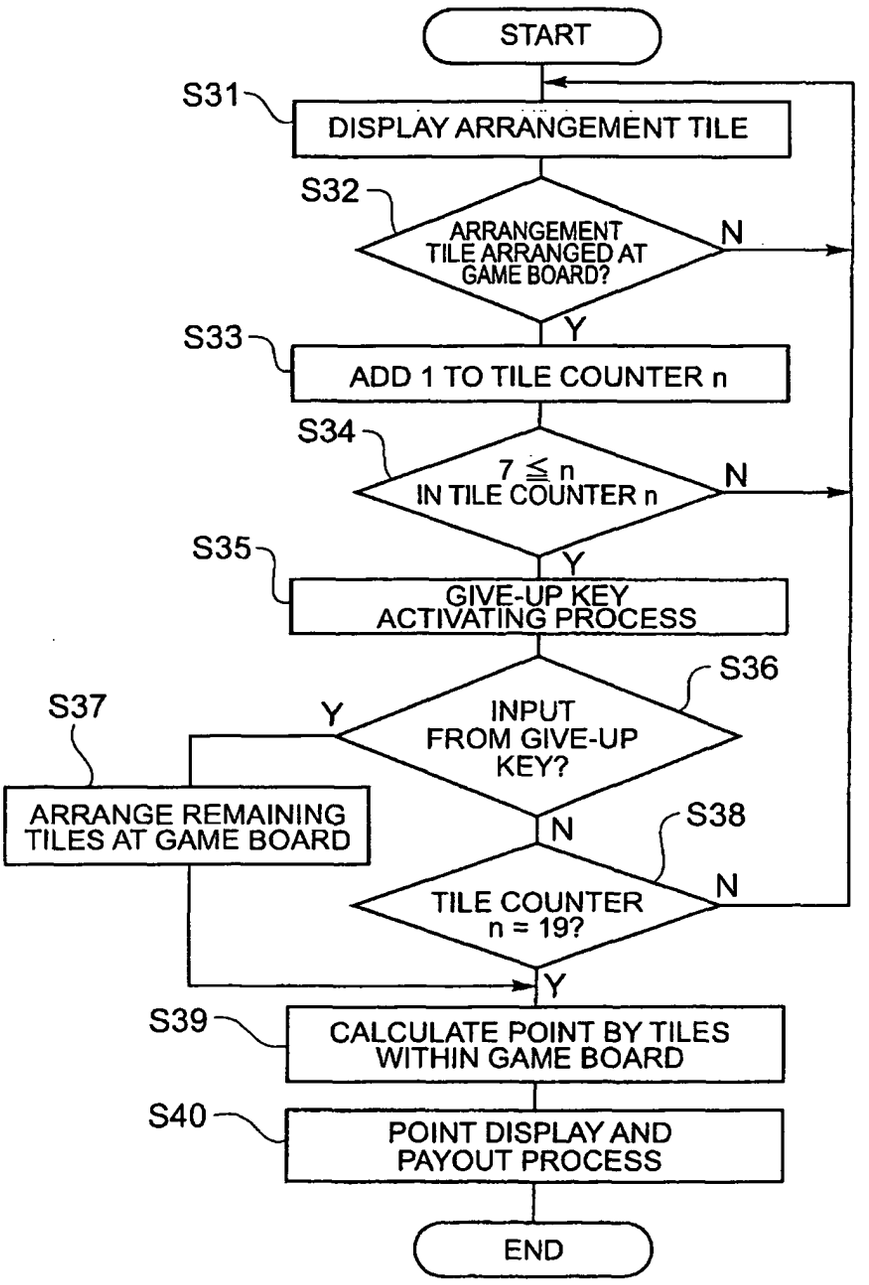

START
S31
DISPLAY ARRANGEMENT TILE
S32
ARRANGEMENT TILE ARRANGED AT GAME BOARD?
N
Y
S33
ADD 1 TO TILE COUNTER n
S34
7 ≦ n IN TILE COUNTER n
N
Y
S35
GIVE-UP KEY ACTIVATING PROCESS
S36
INPUT FROM GIVE-UP KEY?
Y
S37
ARRANGE REMAINING TILES AT GAME BOARD
N
S38
TILE COUNTER n = 19?
N
Y
S39
CALCULATE POINT BY TILES WITHIN GAME BOARD
S40
POINT DISPLAY AND PAYOUT PROCESS
END

Fig.21

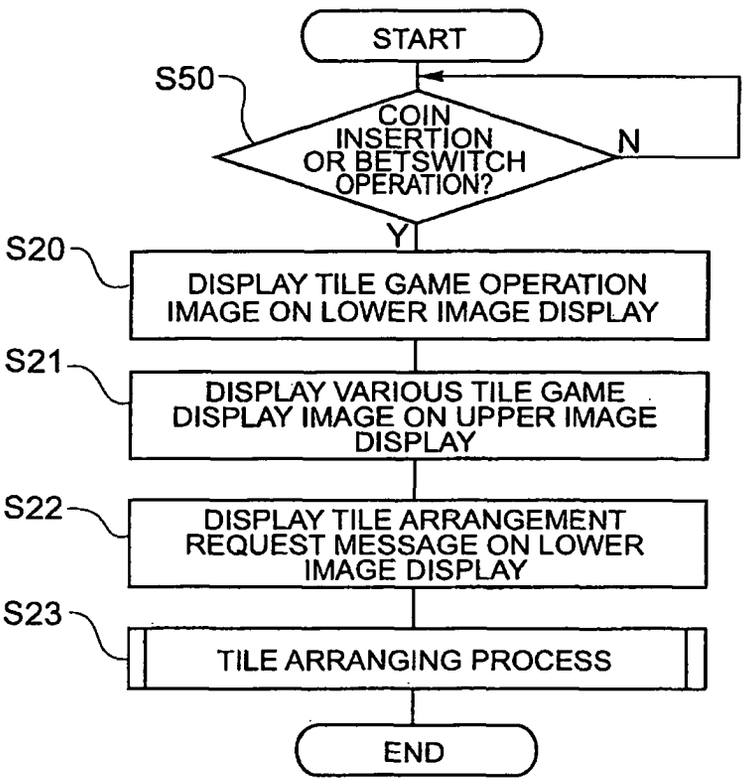

START
S50
COIN INSERTION OR BETSWITCH OPERATION?
N
Y
S20
DISPLAY TILE GAME OPERATION IMAGE ON LOWER IMAGE DISPLAY
S21
DISPLAY VARIOUS TILE GAME DISPLAY IMAGE ON UPPER IMAGE DISPLAY
S22
DISPLAY TILE ARRANGEMENT REQUEST MESSAGE ON LOWER IMAGE DISPLAY
S23
TILE ARRANGING PROCESS
END

Fig.22A

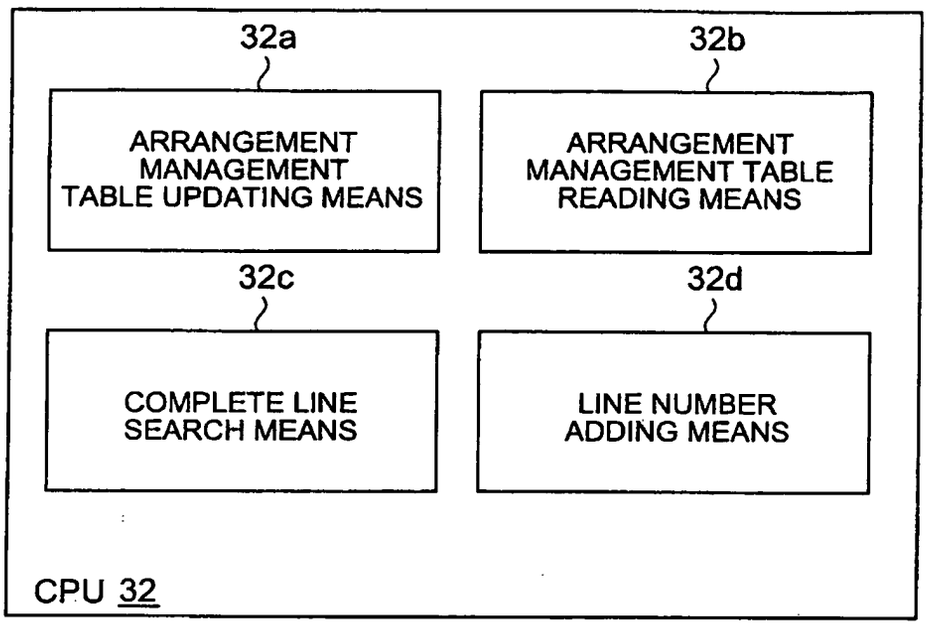


Fig.22B

200a 200b

	ARRANGEMENT PRESENCE/ABSENCE	ATTRIBUTE INFORMATION
102a	1	5,4,6
102b	0	———
102c	0	———
⋮	⋮	⋮

200

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 00 4153

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 2004/023707 A1 (MAYA DARREN ET AL) 5 February 2004 (2004-02-05) * page 1, paragraph 32 - paragraph 37 * * page 6, paragraph 65 - page 7, paragraph 71 *	1-11	G07F17/32
X	US 2003/211880 A1 (LOCKE DAVID K) 13 November 2003 (2003-11-13) * page 1, paragraph 4 * * page 1, paragraph 11 - page 2, paragraph 20 *	1-11	
X	US 2003/087690 A1 (LOOSE TIMOTHY C ET AL) 8 May 2003 (2003-05-08) * page 1, paragraph 12 - paragraph 13 *	1-11	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

G07F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	7 June 2005	Bohn, P

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