



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 1 434 179 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
30.06.2004 Bulletin 2004/27

(51) Int Cl.7: **G07F 17/32**

(21) Application number: **03029678.4**

(22) Date of filing: **23.12.2003**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT RO SE SI SK TR**
Designated Extension States:
AL LT LV MK

(72) Inventor: **Fujimoto, Jun**
Tokyo 135-0063 (JP)

(74) Representative: **HOFFMANN - EITLE**
Patent- und Rechtsanwälte
Arabellastrasse 4
81925 München (DE)

(30) Priority: **24.12.2002 JP 2002372603**

(71) Applicant: **Aruze Corporation**
Tokyo 135-0063 (JP)

(54) Gaming machine and gaming system

(57) A gaming system according to the invention comprises a plurality of gaming machines, each of which utilizes a storage medium capable of being inserted to the gaming machines. Types and minimum bets of the gaming machines differ between at least two of the gaming machines. The storage mediums are commonly

used with the gaming machines. For this reason, a player can play games over the gaming machines on a consecutive basis without exchanging of game medium (chips, coins or the like). And the player can continue to have interest in games and be excited by games, and enjoy games for a long time.

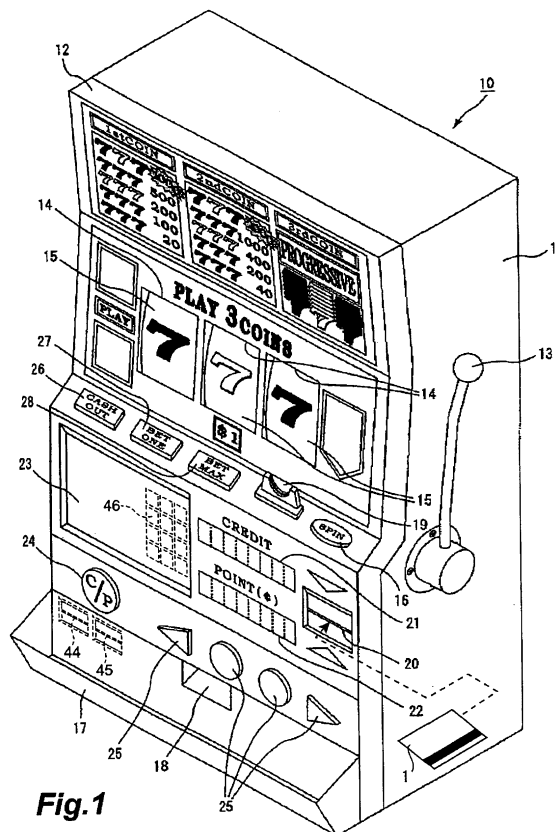


Fig.1

EP 1 434 179 A2

Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a gaming machine provided in game arcades such as casinos and a gaming system applied to game arcades such as casinos.

Related Background Art

[0002] A casino is a game arcade where, for example, slot machines, roulette games, dice games, card games, etc. can be played. In such game arcades, players may exchange cash to coins or chips or obtain coins or chips by making a credit card payment to enjoy various games using game mediums such as these coins or chips.

[0003] For each of such various games, a minimum bet is defined so that a player can not play a game without betting game mediums not less than the minimum bet. For example, when the minimum bet is defined as 5 dollars, a player can not play a game without betting game mediums of 5 dollars or more. Minimum bets vary among game arcades as well as among types of games. Furthermore, minimum bets may vary among games of the same type. For example, there are card game tables allowing blackjack to which the minimum bet is defined as 3 dollars, and card game tables allowing blackjack to which the minimum bet is defined as 5 dollars. Like this, minimum bets are defined so as to vary among different gaming machines or machines.

[0004] Furthermore, for a gaming machine such as a slot machine which accepts only one kind of coins or the like, the term of minimum bet is not used, but the term of denomination is used. Denominations also vary among games of the same type. For example, there are slot machines for which the denomination is defined as a 25-cent coin, and slot machines for which the denomination is defined as a 1-dollar coin. Like this, denominations are defined so as to vary among game arcades, types of games or gaming machines. Since minimum bets or denominations which vary among games or gaming machines are defined as described above, a player may, for example, select games or gaming machines in accordance with their money or the like in hand to enjoy games in such a way that the player enjoys games for a long time with a little wager or aims to make a fortune at one stroke by a large wager.

[0005] However, since minimum bets or denominations which vary among games or gaming machines are defined, when a player plays a game (or with a gaming machine) and then plays another game (or with another gaming machine), the player has to exchange coins or chips in hand to cash by means of a changing booth, cashier, or the like, and then exchange cash to another

type of coins or chips by means of a bill validator, changer, or the like.

[0006] Since the exchange of coins or chips is required between game plays as stated above, the player can not play games consecutively along with two or more games or gaming machines. For this reason, there is a problem that every time the player plays another game or another gaming machine, the player loses interest in the game or the player's excitement for the game tones down, and thereby it is difficult for the player to get deeply involved in the game. Furthermore, since time is consumed for the exchange of coins or chips, time for games is shortened. This would be one of impediments to that the game arcade secures its profit. In addition, there is a problem that playing games while carrying coins or chips is troublesomeness for the player, and particularly is annoying to women.

[0007] Game medium managing methods in conventional gaming systems includes a method in which chip card type game cards are used (see a published Japanese translation of a PCT patent application No. 2001-506031). However, this method is different from the configuration of the present invention in that this method is based on the premise that gaming machines are connected with a host computer or the like through a network, that this method is mainly intended for gaming machines located in places other than game arcades, and the like. Furthermore, this method does not solve the problem that the exchange of coins or chips is required every time the player plays another game or another gaming machine.

[0008] It is therefore an object of the present invention to provide a gaming machine and gaming system which allow players to continue to have interest in and be excited by games so that the players gets deeply involved in and enjoy games for a long time, and which is capable of preventing the time for games from being shortened due to the exchange of coins or chips so that the game arcade secures its more profit.

SUMMARY OF THE INVENTION

[0009] The gaming machine according to the present invention comprises a game medium providing device for providing a game medium for a game, stored in the storage medium; and a value recording device for recording a value of the game medium at a predetermined rate on the storage medium, based on a result of the game. Each game player has the storage medium and puts it into the game machine when he plays a game.

[0010] According to the gaming machine of the present invention, when the player possess no game medium such as a chip or coin, but has a storage medium, the player may get game mediums provided from the gaming machine by using the storage medium to start a game. When the player finishes the game, game mediums which have been obtained through the game play or which have been put in the gaming machine, are

exchanged to value at a predetermined rate, and the value is added to the value stored in the storage medium. For this reason, the troublesomeness of carrying a number of game mediums to play games in a game arcade can be eliminated.

[0011] Furthermore, the gaming machine mentioned above may be used with other gaming machines. Types and minimum bets (including denominations) of the game machines differ between at least two of the gaming machines, and the storage medium is utilized in each of the gaming machines.

[0012] Since the storage medium, which stores the value, is commonly used with the gaming machines, it is not necessary to carry out the annoying exchange of the game mediums with the different game mediums (game machine) or with the different minimum bets (denominations). The player can play two or more types of games or play with two or more gaming machines consecutively. As the result, it can be prevented that the player loses interest in games or the player's excitement for games tones down, and moreover the interest or excitement may be increased cumulatively, and thereby it becomes possible that the player gets deeply involved in the game. Furthermore, time is not consumed for the exchange of the game mediums, and thereby it becomes possible that the game arcade secures its profit sufficiently.

[0013] Here, the gaming machine preferably comprises a storage medium issuing device for issuing the storage medium. And the gaming machine preferably comprises a game medium converting device for converting at least a portion of the value so as to pay out money. And the gaming machine preferably comprises a game medium payout device for paying out at least a portion of the value as a physical game medium (such as a coin, a token, a medal, a chip or the like).

[0014] Furthermore, a gaming system according to the present invention comprises a plurality of gaming machines, each of which utilizes the storage medium and types and minimum bets of the gaming machines differ between at least two of the gaming machines. The gaming machines comprise a game medium providing device for providing a game medium for a game, stored in the storage medium; and a value recording device for recording the value of the game medium at a predetermined rate on the storage medium, based on a result of the game.

[0015] According to the gaming system of the present invention, when the player possesses no game medium but has the storage medium, the player may get game mediums provided from the gaming machines by using the storage medium, and thereby the troublesomeness of carrying a number of game mediums to play games in the game arcade can be eliminated.

[0016] Furthermore, it is possible that when starting a game, the player gets game mediums used for a gaming machine provided from the gaming machine, and when finishing the game, value corresponding to game medi-

ums obtained through the game or physical game mediums put into the gaming machine, is added to the value information stored in the storage medium. For this reason, it is not necessary to carry out the complicated work for the exchange of game mediums also between games for which different minimum bets or dominations have been defined or between gaming machines for which different minimum bets or dominations have been defined, and thereby a player may play two or more types of games or play with two or more gaming machines consecutively. As the result, it can be prevented that the player loses interest in games or the player's excitement for games tones down, and moreover the interest or excitement may be increased cumulatively, and thereby it becomes possible that the player gets deeply involved in the game. Furthermore, time is not consumed for the exchange of game mediums, and thereby it becomes possible that the game arcade secures its profit sufficiently.

[0017] The gaming machine of the gaming system described above preferably further comprises a storage medium issuing device. The storage medium issuing device comprises a value inputting device for recording a value based on a physical game medium inserted and an issuing device for issuing the storage medium, which stores the value. Otherwise, the gaming system preferably further comprises a storage medium issuing device separately. This storage medium issuing device comprises the value inputting device and the issuing device.

[0018] The gaming machine of the gaming system described above preferably further comprises a game medium converting device for converting at least a portion of the value so as to pay out a physical game medium. Hereby, a player may convert the value stored in the storage medium or the game mediums stored in the game machine into physical game mediums to finish the game. For this reason, the player does not need to get game mediums converted to physical game mediums through a person at, for example, a change booth, cashier, or the like, and thereby can finish the game smoothly.

[0019] In addition, the gaming machine of the gaming system described above preferably further comprises a game medium payout device for paying out at least a portion of the value as a physical game medium. In such a gaming machine, with regard to the game mediums obtained through the game, not only the value corresponding to the game mediums is added to the value stored in the storage medium to be stored, but also the physical game mediums may be paid out at predetermined time. The player can enjoy the atmosphere or feeling at the time when the player gets a high dividend like in a game arcade having a conventional gaming system.

[0020] Furthermore, it is preferable that the game medium payout device pays out a predetermined amount of the game medium and the value recording device records a portion of the amount in the storage medium as the value. For example, the portion of the amount

recorded in the storage medium can be the remaining gaming medium to be paid out. In such arrangement, when an extremely large number of game mediums are paid out such as jackpot, actual game mediums up to predetermined amount is paid out, and a portion of the amount (the remaining gaming medium to be paid) is recorded in the storage medium as the value. For this reason, the player can enjoy the atmosphere or feeling at the time when the player gets a high dividend like a conventional gaming system, and the troublesomeness of handling a large number of game mediums can be eliminated.

[0021] Furthermore, the value inputting device of the gaming machine of the gaming system described above preferably records an ID code on the storage medium, when recording the value in the storage medium based on the physical game medium. The ID code can be previously stored in the storage medium. Hereby, it can be easily found that storage mediums for other game arcades are used or the data such as value information has been falsified, and thereby fraud can be prevented.

[0022] The gaming system preferably further comprises a host computer. The host computer comprises a value obtaining device for obtaining the value and the ID code from the storage medium issuing device (or the storage medium issuing machine) and at least one of the gaming machines. And the host computer comprises a storage device for storing the value for the ID code. Hereby, the value (input/output data of the value) is stored every ID code into the host computer, and thereby these data can be controlled in real time in an integrated fashion. Based on these data, for example, it can be found speedily and securely that storage mediums for other game arcades are used or data of the value has been falsified. As the result, it is possible to respond quickly to unfair gaming procedures and thereby it can be prevented that unfair gaming procedures, etc. are executed.

[0023] The coin has been presented as an example of a medium to be paid out in this specification, however, the coin may alternatively be a token, a medal, or the like. 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 are not to be considered as limiting the present invention.

[0024] Further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will be apparent to those skilled in the art from this detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025]

Fig. 1 is a perspective view schematically showing one example of a slot machine according to the invention.

Fig. 2 is a block diagram showing the internal structure of the slot machine shown in Fig. 1.

Fig. 3 is a flow chart showing a subroutine related to the output and input of coins executed by the slot machine shown in Fig. 1.

Fig. 4 is a flow chart showing a subroutine which is called and executed in step S24 of the flow chart shown in Fig. 3.

Fig. 5 is a perspective view schematically showing an example of a roulette table according to the invention.

Fig. 6 is a front view schematically showing a satellite mounted on the roulette table shown in Fig. 5.

Fig. 7A is a block diagram schematically showing the internal structure of the roulette table shown in Fig. 5.

Fig. 7B is a block diagram showing the internal structure of a satellite mounted on the roulette table shown in Fig. 5.

Fig. 8 is a flow chart showing a subroutine related to the output and input of chips executed on the roulette table shown in Fig. 5.

Fig. 9 is a schematic diagram showing an example of a game arcade according to the invention.

Fig. 10 is a perspective view schematically showing the house-card issuing device shown in Fig. 9.

Fig. 11 is a block diagram showing the internal structure of the house-card issuing device shown in Fig. 9.

Fig. 12 is a flow chart showing a subroutine executed by the house-card issuing device shown in Fig. 9.

Fig. 13 is a perspective view schematically showing the converting device shown in Fig. 9.

Fig. 14 is a block diagram showing the internal structure of the converting device shown in Fig. 9.

Fig. 15 is a flow chart showing a subroutine executed by the converting device shown in Fig. 9.

Fig. 16 is a block diagram showing the internal structure of the host computer shown in Fig. 9.

Fig. 17 is a flow chart showing a subroutine executed by the host computer shown in Fig. 9.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0026] The preferred embodiments of the invention will be described based on the drawings. The case where a so-called house card (value information account card which can be used repeatedly only in particular game arcades) is used as a storage medium is described below. As a storage medium according to the invention, for example, an IC card, or a card provided

with an EPROM (Erasable Programming ROM), an OTPROM (Optical Programmable ROM), an EEPROM (Electrically Erasable Programmable ROMs), a flash memory (flash type EEPROM) or the like, or the like may be mentioned. An integral circuit other than such memories, for example, those constituted by a microprocessor or the like may also be usable. Furthermore, a storage medium according to the invention may be, for example, an electromagnetically readable and writable storage medium such as a magnetic card provided with magnetic stripes. Any one of these cards is used here as a house card.

[0027] At first, as a preferable embodiment of a gaming apparatus according to the invention, the case where the invention is applied to a slot machine is shown and is described below. Fig. 1 is a perspective view schematically showing an example of a slot machine according to the invention.

[0028] The slot machine 10 is provided with a housing 11 having an openable and closable front door 12. The front door 12 is provided with three display windows 14 arranged in the horizontal direction at a level higher than a nearly middle level of its foreface. Inside of the housing 11, three reels 15 each having a plurality of symbols drawn on the outer surface of it are located, and the symbols drawn on each of the reels 15 are displayed variably so as to be visible through the display window 14. Furthermore, under the center display window 14, a character "\$1" is drawn, which shows that the denomination is 1 dollar. On a side of the housing 11, a handle 13 is mounted rotatably. When the handle 13 is pulled toward the front, the three reels 15 spin and the symbols drawn on each of the reels 15 are displayed variably so as to be visible through the display windows 14.

[0029] Under the three display windows 14, a "CASH OUT" button 26, a "BET ONE" button 27, a "BET MAX" button 28, a slot 19, and a "SPIN" button 16 are mounted in this order from left to right. The "CASH OUT" button 26 is used to pay out physical game mediums from based on the game medium stored as credits in the slot machine 10. The "BET ONE" button 27 is used when a player wagers the game medium corresponding to one of coins stored as credits to play a game. The "BET MAX" button 28 is used when a player wagers the game mediums corresponding to the maximum number (e.g. 3 or the like) of coins stored as credits, which can be used for a single game, to play a game. The coin slot 19 is an opening to accept a 1-dollar coin, inside of which a discriminating sensor 40 (not shown in Fig. 1, but see Fig. 2) to detect a 1-dollar coin is provided. The "SPIN" button 16 has a function identical to that of the handle 13, so that the "SPIN" button is operated to spin the three reels 15.

[0030] At lower levels than the various buttons 16 and 26 to 28 and the coin slot 19 mentioned above, a card insertion slot 20 from which a house card (storage medium) 1 is inserted, a credit number display 22 for displaying a number of coins stored as credits, a value dis-

play 22 for displaying value stored in a house card, and a display device 23 for displaying various information such as error messages are provided. Furthermore, at lower levels than them, a "C/P (credit/pay out)" button 24 and a plurality of control buttons 25 are provided. The "C/P" button 24 is a button for selecting whether game medium obtained through a game is stored as credits or paid out as coins (physical game mediums).

[0031] The plurality of control buttons 25 include direction selecting buttons, a decision button, and a cancel button, which allow input of various indications according to various information displayed on the display device 23. For example, when a player finishes a game and then pays out the value stored as credits in the slot machine 10, an image prompting the player to select whether the value is stored in the house card or paid out as coins is displayed on the display device 23. The player may operate the control buttons 25 while seeing the image to select whether the value is stored in the house card or paid out as coins.

[0032] Furthermore, a coin payout tray 17 capable of receiving coins is provided at the bottom of the front of the housing 11. Coins paid out from the payout opening 18 are stored in the coin payout tray 17. On the other hand, three correlation tables indicating correlations between combinations of the symbols and numbers of coins to be obtained are drawn above the three display windows 14. From left to right, a correlation table when one coin is wagered to play a game, a correlation table when two coins are wagered to play a game, and a correlation table when three coins are wagered to play a game are shown in this order. "PROGRESSIVE" in the correlation table when three coins are wagered gives a so-called jackpot.

[0033] Next, the internal structure of the slot machine 10 will be described. Fig. 2 is a block diagram showing the internal structure of the slot machine 10 shown in Fig. 1. The control circuit of the slot machine 10 is constituted by a control unit 30, its peripheral circuits, etc. The control unit 30 comprises a central processing unit (CPU) 31, a read only memory (ROM) 32, a random access memory (RAM) 33, and a communication interface circuit 35.

[0034] The CPU 31 controls the slot machine 10 by reading and executing the control programs stored in the ROM 32, etc. The CPU 31 is connected with a random number generator (RNG) 34 for generating random numbers. The RNG 34 generates random numbers at a predetermined time such as a time when the discrimination sensor 40 detects that a coin is dropped in the coin slot 19, a time when the "BET ONE" button 27 or "BET MAX" button is operated, or a time when the handle 13 or "SPIN" button 16 is operated. According to the random numbers generated by the RNG 34, motions of the three reels 15 are controlled.

[0035] In the ROM 32, for example, programs for operating the CPU 31, data for operating the slot machine 10, and the like are stored. In the RAM 33, for example,

a number of coins stored as credits, and data related to value information to be stored in the house card are stored temporarily. The communication interface circuit 35 is that for communicating with other devices provided in the game arcade through, for example, a communication line such as a public telephone network or a local area network.

[0036] The control unit 30 is connected with a reel position detecting circuit 42 and a motor driving circuit 43. The reel position detecting circuit 42 is a circuit for generating signals for detecting a rotational position of each of the reels 15 based on pulse signals from a reel rotation sensor 41 mounted on each of the reels 15. The motor driving circuit is a circuit for controlling stepping motors for rotationally driving each of the reels 15 respectively.

[0037] In addition, the control unit 30 is connected with the handle 13, the "SPIN" button 16, the "C/P" button 24, the control buttons 25, the "CASH OUT" button 26, the "BET ONE" button 27, the "BET MAX" button 28, and the discrimination sensor 40.

[0038] When the handle 13 is pulled, a command signal for rotating the reels 15 is supplied to the CPU 31. When the CPU 31 receives the command signal, it executes the process of starting the rotation of the three reels 15. When the "SPIN" button 16 is operated, a command signal for rotating the reels 15 is also supplied to the CPU 31 as in the case where the handle 13 is pulled. Furthermore, when the other various buttons 24 to 28 are operated, command signals corresponding to kinds of the buttons are supplied to the CPU 31, which executes various processes according to the command signals supplied.

[0039] When the discrimination sensor 40 detects a coin dropped in the coin slot, it sends a detection signal to the CPU 31. When the CPU 31 receives the detection signal, it adds the number of the coins to the points stored in the RAM 33 and stores the same. As a result, the number of coins stored as credits increases. If the type or minimum amount of a coin dropped is different from a predetermined one, the discrimination sensor 40 does not send a detecting signal to the CPU 31 and the coin is paid out from the payout opening 18.

[0040] In addition, the control unit 30 is connected with the credit number display 21, the value display 22, the display device 23, the reader/writer (R/W) 36, the hopper 37, the coin detecting unit 38, and the speaker 39. The credit display 21 displays the number of coins stored as credits, i.e. the number of coins stored in the RAM 33, and comprises, for example, a 7-segment display, a LED display, or the like. The credit number display 21 displays a credit number according to a driving command given by the CPU 31 according to the change of the number of coins stored as credits.

[0041] The value display 22 displays value information read from the house card by the R/W 36, and comprises, for example, a 7-segment display, a LED display, or the like. The value display 22 displays value accord-

ing to a driving command given by the CPU 31 according to the change of value information read from the house card. Further, the display device 23 comprises, for example, a liquid crystal display, a LED display, or the like, and displays various information related to the progress of a game such as error messages based on imaging commands, etc. supplied by the CPU 31.

[0042] The R/W 36 is a device capable of reading data from a house card inserted in the card insertion slot 20 and writing data into a house card. The R/W 36 executes the processing of reading value information stored in the house card, the processing of adding value information to be stored in the house card.

[0043] The hopper 37 executes the payout of coins based on a driving signal supplied by the CPU 31. When the coin detection unit 38 detects coins paid out by the hopper 37, it sends a detecting signal to the CPU 31. When the CPU 31 determines that a predetermined number of coins have been paid out, by the detection signal, it sends a command signal to stop the payout of a coin to the hopper 37. Further, the speaker 39 generates sound effect according to the situation of the game.

[0044] In the following, it is assumed that the slot machine 10 has been powered on, variables used by the CPU 31 mentioned above have been initialized to predetermined values, and the slot machine 10 is under normal operating conditions. Next, an example of subroutine executed by the control unit 30 will be described with reference to Figs. 3 and 4.

[0045] Fig. 3 is a flow chart showing a subroutine related to the output and input of coins executed by the control unit 30. This subroutine is called at a predetermined time from the program of controlling the operation of the slot machine 10 executed previously and is executed.

[0046] At first, the CPU 31 determines whether a house card has been inserted in the card insertion slot 20 (step S10). That is, the CPU 31 sends a command signal to the R/W 36 to make the R/W 36 recognize whether a house card has been inserted in the card insertion slot 20. When the R/W 36 recognizes that a house card has been inserted in the card insertion slot 20, it sends a recognition signal to the CPU 31. The CPU 31 determines whether a house card has been inserted in the card insertion slot 20 based on whether it has received the recognition signal or not.

[0047] When it is determined that a house card has been inserted in the card insertion slot 20, the process of reading value information stored in the house card is executed (step S11). That is, the CPU, firstly, drives the R/W 36 to take the house card into the slot machine 10 through the card insertion slot 20 to prevent the player from freely removing the house card from the card insertion slot 20 and inserting a new house card in it. After that, the CPU 31 drives the R/W 36 to read value information stored in the house card and store it in the RAM 33. For example, when the value information of 100 dollars is stored in the house card, the CPU 31 reads the

value information to store the value of 100 dollars into the RAM 33. At that time, the CPU 31 drives the value display 22 to display the value information stored in the RAM 33.

[0048] When it is determined in step S10 that no house card has been inserted in the card insertion slot 20, or the process of step S11 has finished, the CPU determines whether the "C/P" button 24 has been operated (step S12). By the "C/P" button 24, it can be selected whether the value (coins) obtained during a game is stored as credits or paid out as coins. When the "C/P" button 24 is operated, an operation signal is sent to the CPU 31. The CPU 31 determines whether the "C/P" button 24 has been operated based on whether the CPU 31 has received the operation signal.

[0049] When the CPU 31 determines that the "C/P" button 24 has been operated, it executes the process of switching over whether coins obtained through a game are stored as credits or coins obtained through a game are paid out (step S13). For example, when the coins are to be stored as credits, this process can be executed by storing the data (hereinafter also called credit indication data), which indicates that the coins are stored as credits, into the RAM 33. And when the coins are to be paid out, it can be executed by erasing the credit indication data.

[0050] If it has been selected before step S13 that coins are paid out as credits, that is, credit indication data has been already stored, the CPU 31 erases the credit indication data in step S13. As a result, paying out coins is selected. On the other hand, if it has been selected before step S13 that coins are paid out, that is, no credit indication data has been stored yet, the CPU 31 creates credit indication data to store it into the RAM 33 in step S13. As a result, paying out coins as credits is selected. In this connection, it may be possible to show the player which of payout by credits and pay out by coins (physical game medium) has been selected, by means of, for example, the lighting or flashing of the "C/P" button 24, or display by the display device 23.

[0051] When it is determined that the "C/P" button 24 has not been operated in step S12, or the process of step S13 has finished, the CPU 31 determines whether, as a method for the payout of value information stored as credits when the game is finished (the "CASH OUT" button is operated), the writing of the value information to the house card or payout by coins has been indicated (step S14). Methods for the payout of value stored as credits include the method of adding value exchanged at a predetermined exchange rate to the value information stored in the house card (hereinafter also called the method of writing the value information into the house card), and the method of paying out coins directly. The indication of a payout method is input by operating the control buttons 25 based on an indication or the like in a predetermined image displayed on the display device 23.

[0052] When it is determined in step S14 that there

has been a selection (switching) indication about a method for paying out value stored as credits when the game is finished, the CPU 31 executes the process of switching over the payout method to the method of writing value exchanged at a predetermined exchange rate into the house card, or the method of paying out coins directly (step S15). This process can be executed, for example, by storing data indicating the addition of value into the RAM 33 (hereinafter also called addition indicating data) when value exchanged at a predetermined exchange rate is written into the house card, or by erasing the addition indicating data when coins are paid out.

[0053] When the method of writing value into the house card has been selected before step S15, that is, addition indicating data has been already stored, the CPU erases the addition indicating data in step S15. As the result, the payout method is switched to the method of paying out coins. On the other hand, when the method of paying out coins has been selected before step S15, that is, no addition indicating data has been stored yet, the CPU 31 creates addition indicating data to store it into the RAM 33 in step 15. As the result, the payout method is switched to the method of storing value into the house card. Furthermore, it is possible to show the player which of the method of writing value into the house card and the method of paying out coins directly has been selected as a method for paying out value when the game is finished, by means of, for example, display by the display device 23.

[0054] When it is determined in step S14 that there has not been a selection (switching) indication about a method for paying out value stored as credits when the game is finished, or the process of step S15 is finished, the CPU 31 determines whether the indication of paying out value in the house card as coins (or credits) has been input (step S16). When a player plays a game at the slot machine 10 with a house card mentioned above, the player needs to allow value in the house card inserted to be stored as credits into the slot machine 10, or allow the slot machine 10 to pay out value in the inserted house card as coins. The indication of paying out value as coins (credits) is input by operating the control buttons 25 based on an indication or the like in a predetermined image displayed on the display device 23, and includes data representing how much value amount is paid out and the like.

[0055] When it is determined in step S16 that the indication of paying out (providing) as coins (or credits) has been input, the CPU 31 determines whether it has been selected to pay out value as credits (step S17). Whether it has been selected to payout value as credits is determined, for example, by determining whether credit indication data has been stored. That is, the payout method herein is in accordance with a payout method (a method for paying value obtained through the game) switched in steps 12 and 13.

[0056] When it is determined that it has been selected to pay out value as credits in step S17, the CPU 31 ex-

ecutes the process of renewing (adding) the number of credits stored in the RAM 33 based on the type of game medium and the minimum amount (e.g. 1 dollar for the slot machine 10) according to the indication of paying out (providing) as credits (step S18). As the result, value corresponding to as many coins as indicated is stored as credits. At that time, the CPU 31 executes the process of driving the credit number display 21 to make it display the number of credits stored in the RAM 33.

[0057] On the other hand, when it is determined that it has not been selected to pay out value as credits in step S17, the CPU 31 executes the process of driving the hopper 37 to pay out coins based on the type of game medium and the minimum amount according to the indication of paying out (providing) as coins (step S19). As the result, as many coins as indicated are paid out. When the process in step S18 or S19 has finished, the CPU 31 executes the process of renewing (subtracting) value information stored in the RAM based on the value stored as credits or the value corresponding to the coins paid out (step S20). At that time, the CPU 31 executes the process of driving the value display 22 to allow it to display value information stored in the RAM 33. When the processes in steps S10 to S20 are being executed, the slot machine 10 functions as a game medium providing device for providing game mediums within the value stored in the house card. At that time, the slot machines also functions as a game medium payout device for paying out the game mediums (value) obtained through a game play, as game mediums such as coins.

[0058] When it is determined in step S16 that no indication of paying out value information has been input, or the process of step S20 has finished, the CPU 31 determines whether a coin has been dropped in the coin slot 19, that is, the CPU 31 has received a detection signal from the discrimination sensor 40 (step S21). When the CPU 31 determines that it has received a detection signal from the discrimination sensor 40, it executes the process of renewing (adding) the number of credits stored in the RAM 33 (step S22). At that time, the CPU 31 executes the process of drives the credit number display 21 to allow it to display the number of credits stored in the RAM 33.

[0059] When it is determined in step S21 whether a detection signal from the discrimination sensor 40 has not been received, or the process of step S22 has finished, whether a BET button (BET ONE button 27 or BET MAX button 28) has been operated (step S23) is determined. When it is determined that a BET button has been operated, the game executing process (step S24) is executed, of which details will be described later.

[0060] When it is determined in step S23 that a BET button has not been operated, or the process of step S24 has finished, whether the CASH OUT button 26 has been operated is determined (step S25). That is, the CPU 31 determines whether it has received an operation signal from the CASH OUT button 26. When it is determined that the CASH OUT button 26 has not been

operated, this subroutine is finished.

[0061] On the other hand, when it is determined in step S25 that the CASH OUT button 26 has been operated, the CPU 31 determines whether the method of writing value information into the house card has been selected as a method for paying out value stored as credits in the slot machine 10 (step S26). That is, the CPU 31 determines whether the method of writing value information into the house card has been selected, by determining whether there has been addition indication data stored in the RAM 33. The payout method herein is switched in steps S14 and S15.

[0062] When it is determined that the method of writing value has been selected as a method for paying out value stored as credits in the slot machine 10, the CPU 31 drives the R/W 36 to write value into the house card (step S27). As the result, value information stored as credits in the slot machine 10 is exchanged in a predetermined exchange rate to be added to the value information in the house card to be stored. On the other hand, when it is determined that the method of writing value has not been selected as a method for paying out value stored as credits in the slot machine 10, the CPU 31 drives the hopper 37 to pay out coins (step S28). When the process of step S27 or S28 has finished, the CPU 31 executes the process of renewing (subtracting) the number of credits stored in the RAM 33 (step S29) and then finishes this subroutine. In the processes of steps S25 to S29, the slot machine 10 functions as a value recording device for adding value corresponding to the game mediums (game mediums obtained through the game play and/or coins [physical game mediums] dropped in the coin slot 19) to the value in the house card at a predetermined rate.

[0063] Fig. 4 is a flow chart showing a subroutine called and executed in step S24 described above. Firstly, the CPU 31 determines whether a BET button has been operated, that is, the CPU 31 has received an operation signal (step S40) from a BET button. When it is determined that a BET button has been operated, the CPU 31 executes the process of storing a bet number into the RAM 33 (step S42) and the process of renewing (decreasing) the credit number (step S42).

[0064] For example, when the BET ONE button 27 has been operated one time, the CPU 31 executes the process of storing the bet number as 1 and the process of decreasing the credit number by 1. On the other hand, when the BET MAX button 28 has been operated, the CPU 31 executes the process of storing the bet number as 3 and the process of decreasing the credit number by 3. At that time, the CPU 31 drives the credit number display 21 to allow it to display the credit number stored in the RAM 33. In this connection, since it was determined in step S23 that the BET button had been operated, when the process of step S40 is executed first, the CPU 31 determines that the BET button has been operated.

[0065] When it is determined in step S40 that the BET

button has not been operated, or the process of step S42 has finished, the CPU 31 determines whether the handle 13 or the SPIN button 16 has been operated (step S42). That is, the CPU 31 determines whether the handle 13 or the SPIN button 16 has been operated by determining whether the CPU 31 has received an operation signal sent from the handle 13 or the SPIN button 16.

[0066] When the CPU 31 determines that the handle 13 or the SPIN button 16 has not been operated, it returns the procedure to step S40 and then executes the processes of steps S40 to S43 repeatedly. At that time, when it is determined in step S40 that the BET button has been operated, the CPU 31 executes the process of newly increasing the bet number to be stored in step S41, and the process of decreasing the credit number in step S42. In this connection, since the upper limit of the bet number is 3, when the bet number has reached 3, the CPU 31 does not execute the operation of increasing the bet number and the operation of decreasing the credit number even if it was determined that the BET button had been operated.

[0067] On the other hand, when it is determined in step S43 that the handle 13 or the SPIN button 16 has been operated, the CPU 31 executes the process of allowing the RNG 34 to sample a random number (step S44). This random number is used to decide a combination of symbols displayed when the spinning of the reels 15 is stopped. However, the process of step S44 is not always executed after the process of step S43 is executed and, for example, maybe executed at another time such as a time after the determination of receiving a detection signal from the discrimination sensor 40 in step S21, the determination of operation of the BET button in step S41 or the like.

[0068] When the CPU 31 has finished the process of step S44, it executes the process of sending a command signal to the motor driving circuit 43 to start to drive the reel 15 (step S45). Next, the CPU 31 determines whether it is a time when the spinning of the reels 15 is stopped based on the random number sampled (step S46). When it is determined that it is a time when the spinning of the reels 15 is stopped, the CPU 31 executes the process of stopping the spinning of the reels 15 (step S47).

[0069] When it is determined in step S46 that it is not a time when the spinning of the reels 15 is stopped, or the process of step S47 has finished, the CPU 31 determines whether all the reels 15 have been stopped (step S48). When it is determined in step S48 that not all the reels 15 have been stopped, the CPU 31 returns the procedure to step S46, and then executes the processes of steps S46 to S48 repeatedly until it is determined in step S48 that all the reels 15 have been stopped.

[0070] When it is determined in step S48 that all the reels 15 have been stopped, the CPU 31 determines whether the combination of symbols displayed is a win-

ing combination of symbols (e.g. "7"- "7"- "7" or the like) (step S49). When determined that it is not a winning combination of symbols, this subroutine is finished.

[0071] On the other hand, when determined that it is a winning combination of symbols, the CPU determines whether it has been selected that value obtained through the game is stored as credits (step S50). That is, the CPU 31 determines whether it has been selected that value obtained through the game is stored as credits by determining whether there is credit indication data stored in the RAM 33.

[0072] When determining that it has been selected to store value as credits, the CPU 31 executes the process of renewing (increasing) the credit number stored in the RAM 33 according to the bet number and the award to be won (step S51), and then determines whether the credit number has reached the upper limit (step S52). When determined that the credit number has not reached the upper limit, the CPU 31 finishes this subroutine. At that time, the CPU 31 executes the process of driving the credit number display 21 to display the credit number stored in the RAM 33.

[0073] When it has not been selected to store value as credits, the CPU 31 determines whether the method of writing value into the house card has been selected as a payout method (step S53). When it is determined in step S53 that the method of writing value into the house card has not been selected as a payout method, or it is determined in step S52 that the credit number has reached the upper limit, the CPU 31 drives the hopper 37 to pay out as many coins as corresponding to the bet number and the award to be won (step S54), and then determines whether the number of coins paid out has reached a predetermined number based on a detection signal from the coin detection unit 38 (step S55). When determined that the number of coins paid out has not reached a predetermined number, the CPU 31 finishes this subroutine.

[0074] When it is determined in step S53 that the writing of value has been selected, or it is determined in step S55 that the number of coins paid out has reached a predetermined number, the CPU 31 executes the process of adding as many coins as corresponding to the bet number and the award to be won as the value exchanged at a predetermined exchange rate (step S56), to the value stored in the house card to store the same, and then finishes this subroutine. At that time, the CPU 31 executes the process of driving the value display 22 to display the value.

[0075] As described above, the number of coins (game mediums) to be paid out is herein limited to a predetermined number, and coins other than the predetermined number of coins are stored as value into the house card (storage medium). Here, the all of them can be stored into the house card (storage medium). In such arrangement, when an extremely large number of coins such as jackpot are paid out, the player can enjoy the atmosphere or feeling at the time when the player gets

a high dividend, and the troublesomeness of handling a large number of coins can be eliminated.

[0076] Next, a procedure for playing a game provided by the slot machine will be described.

(1) Firstly, a player inserts a house card into the card insertion slot 20. As the result, the value stored in the house card is displayed on the value display 22, and an image prompting the player to select how much value is exchanged to 1-dollar coins is displayed on the display device 23. The player operates the control buttons 25 to input a desired number of 1-dollar coins within the value stored in the house card, and then as many 1-dollar coins as the number which has been input are provided from the payout opening 18, the value stored in the house card is subtracted, and the result is displayed on the value display 22.

(2) Next, the player drops the provided 1-dollar coins into the coin slot 19. As the result, as many 1-dollar coins as dropped in are stored as credits and the number of coins dropped in is displayed on the credit number display 21. In connection with the above (1), it may be so designed that when the player operates the control buttons 25 to input a desired number of 1-dollar coins, value corresponding to the number which has been input is directly stored as credits.

(3) Next, the player inputs value corresponding to the number of 1-dollar coins to be deposited for the game, of the value stored as credits. For example, when depositing value corresponding to one 1-dollar coin for the game, the player pushes the "BET ONE" button 27 one time, and when depositing value corresponding to several 1-dollar coins for the game, the player pushes the "BET ONE" button 27 as many times as the number of the coins. When depositing value corresponding to three 1-dollar coins for the game, the player can deposit the value corresponding to three 1-dollar coins for the game by pushing the "BET MAX" button one time. The number displayed on the credit number display 21 is decreased by the number of 1-dollar coins deposited for the game.

(4) When the player pulls the handle 13 or operates the "SPIN" button 16, the three reels 15 start to spin, and the symbols drawn on each of the reels 15 are displayed variably through the display windows 14. After predetermined time has passed, spinning of the three reels 15 is stopped, and symbols drawn on each of the reels 15 are displayed through the display windows 14. At that time, when the combination of three symbols displayed matches with a predetermined combination of symbols (e.g. "7"- "7"- "7" or the like), the player is paid value which is obtained according to value corresponding to the number of the coins deposited for the game and the combination of symbols. In this connection, in the

slot machine 10 according to the invention, the player may select in what manner he is paid value.

(5) When storing as credits the value obtained through the game, the player operates the "C/P" button 24 to input the order of awarding a credit. As the result, the value obtained through the game is stored as credits, and the display on the credit number display 21 is increased by the number of 1-dollar coins corresponding to value obtained as the outcome. For example, in the case where the value corresponding to 100 dollars are obtained through the game and payout by credits is selected, credits increased by the number corresponding to 100 dollars is displayed.

(6) On the other hand, when allowing the slot machine to pay out as 1-dollar coins the value obtained through the game, the player operates the "C/P" button 24 to input the order of paying out 1-dollar coins. As the result, the value obtained through the game is paid out as 1-dollar coins. For example, in the case where the value corresponding to 100 dollars are obtained through the game and payout by 1-dollar coins is selected, a hundred 1-dollar coins are paid out.

By repeating the procedures (3) and (4) described above, the player can play games provided by the slot machine 10. Furthermore, if the coins stored as credits have been run out, the player can newly store coins as credits by executing the procedure (2). If the coins on hand have been run out, the player can newly get coins by executing the procedure (1).

(7) When finishing the game, the player operates the "CASH OUT" button 16 to input the order of paying out value stored as credits in the slot machine 10. At that time, if the player has selected a payout method using a house card by operating the control buttons 25 according to the alternatives displayed on the display device 23, value exchanged at a predetermined exchange rate is stored into the house card. If there are 1-dollar coins in hand and they are dropped in the coin slot 19 in advance, value corresponding to them is stored in the house card along with value already stored as credits. The player may, of course, finish the game while possessing 1-dollar coins in hand. On the other hand, the player may allow the slot machine 10 to pay out the value stored as credits in the machine, in coins.

[0077] As described above, in a slot machine according to the invention, when a player possesses no coin, but has one house card, the player may get coins provided from the slot machine using the house card to start a game. For this reason, the troublesomeness of carrying a number of coins between games in a game arcade can be eliminated.

[0078] Furthermore, it is possible that when starting a game, coins used for a slot machine are provided from

the slot machine, and when finishing the game, coins obtained through the game or coins input to the gaming machine are added, as value information to which the coins are exchanged at a predetermined exchange rate, to the value information stored in the house card. For this reason, it is not necessary to implement complicate work for exchange of coins also between games or gaming machines, requesting different minimum bets or denominations, and thereby the player may play two or more types of games or machines, on a consecutive basis. Furthermore, it can be prevented that the player loses interest in games or the player's excitement for games tones down; moreover, the interest or excitement may be increased cumulatively; and thereby it becomes possible that the player get deeply involved in games. Furthermore, time is not consumed for the exchange of game mediums, and thereby it becomes possible that the game arcade secures its profit sufficiently.

[0079] Next, as a preferable embodiment of a gaming machine according to the invention, a roulette table to which the invention is applied will be described. Fig. 5 is a perspective view schematically showing an example of a roulette table according to the invention.

[0080] The roulette table 50 comprises a housing 51 having an oblong substantially rectangular plan view, and a top plate 52 provided at the center part of the top face of the housing 51. At the center part of the top plate 52, a roulette wheel 54 is provided, and on each side of the roulette wheel 54, a roulette list 53 is drawn.

[0081] The roulette wheel 54 has a conventionally publicly known structure, and comprises a roulette board 55 integrally mounted on the top plate 52 and a rotary board 56 rotatably mounted at the center of the roulette board 55. The rotary board 56 is a disc of a bowl-like shape divided into pockets numbered 00 and 0 to 36 respectively. The roulette list 53 also has a conventionally publicly known structure. Although not shown in the figure, on the center part of it, numbers 1 to 36 are arranged like a matrix with 3 rows and 12 columns, and on the upper part of it, numbers 0 and 00 are arranged. Furthermore, the roulette list 53 has bet areas of red/black, odd/even number, 1 to 18/19 to 36, 1st to 3rd dozen, and 1st to 3rd column around the matrix mentioned above. In addition, each speaker 59 is provided at the upper left and the lower right of the top plate 52, which is capable of generating, for example, sound effects, voice, and the like in accordance with situations of the progress of a game and the like.

[0082] Around the top plate 52, total 12 satellites 58 which players use to play games are provided. That is, each of the longer sides of the top plate 52 is provided with 4 satellites 58, and each of the shorter sides of the top plate 52 is provided with 2 satellites 58. Thus, 12 players can play the game of roulette at the same time around the roulette table 50. All of the twelve satellites 58 have substantially the same constitution, but minimum bets for them are different from each other. Details of the satellites 58 will be described later with reference

to the drawings. Furthermore, one of the longer sides of the top plate 52 is provided with a stand display 57, on which, for example, the history of winning numbers of the game of roulette, and the like are displayed.

[0083] Fig. 6 is the front view schematically showing a satellite mounted on the roulette table shown in Fig. 5. The satellite 58 comprises a housing 68, the top face of which is tilted toward the player (front side in the figure), and on the top face of which various equipments and devices are provided. At the upper right of the top face of the housing 68, a card insertion slot 60 is provided for inserting a house card (storage medium) 1. At the left side of the slot 60, a value display 62 is provided on which value stored in a house card is displayed. Further, at the upper left of the top face of the housing 68, a display device 63 is provided on which various information such as error messages and the like are displayed.

[0084] At the lower side of the display device 63, a chip insertion opening 66 having an openable cover is provided. The chip insertion opening 66 is an opening in which chips used for the roulette table 50 are dropped. Inside of the opening 66, a chip counter 69 (not shown in Fig. 6 but see Fig. 7) is provided. On the right of the chip insertion opening 66, a plurality of control buttons 65 are provided. The plurality of control buttons 65 include a direction selecting button, a decision button, and a cancel button, which allow input of various indications according to various information displayed on the display device 63. For example, when a player exchanges value stored in the house card to chips, an image prompting the player to select how much value is exchanged to chips within the range of value stored in the house card. The player can operate the control buttons while seeing the image to be supplied a desired number of chips.

[0085] At the upper left of the front face of the housing 68, a chip payout opening 67 is located. Chips supplied within the range of value stored in the house card are payout to this chip payout opening 67. On the right of the chip payout opening 67, "MINIMUM BET \$10" and "MAXIMUM BET \$3000" are drawn, which show that the minimum bet is 10 dollars and the maximum bet is 3000 dollars. This minimum bet and maximum bet are not fixed for all the satellite 58. A different minimum bets and maximum bet are defined every satellite 58 such that, for example, the minimum bet of 5 dollars and the maximum bet of 1000 dollars are defined for another satellite 58.

[0086] Next, the internal structure of the roulette table 50 will be described. Fig. 7A is a block diagram schematically showing the internal structure of the roulette table 50 shown in Fig. 5, and Fig. 7B is a block diagram showing the internal structure of the satellites 58 mounted on the roulette table 50 shown in Fig. 5. Since the roulette game proceeds between a dealer and a player, the internal structure of the roulette table 50 described later does not directly relate to the game of roulette.

[0087] As shown in Fig. 7A, the roulette table 50 comprises a main control unit 70 including a CPU 71, ROM 72 and RAM 73, 12 satellites 58, a stand display 57, and speakers 59. In the figure, all of the twelve satellites are not shown.

[0088] The CPU 71 executes various processes by means of data supplied from each of the satellites 58, and data, programs and the like stored in the ROM 72 and RAM 73, and controls leadingly each of the satellites 58, allows the stand display 57 to display predetermined images, and allows the speakers to output voice, sound effects and the like, based on the results of the processes. The ROM 72 stores programs for controlling leadingly each of the satellites 58, etc., image data to be displayed on the stand display 57, sound data to be output from the speakers 59, and the like. Further, the RAM 73 temporarily stores data supplied from each of the satellites 58, data related to the history of a game, and the like.

[0089] Next, the satellites connected to the CPU 71 of the main control unit 70 will be described. As shown in Fig. 7B, each of the satellites 58 comprises a control unit 80 and its peripheral equipments. The control unit 80 comprises a CPU 81, ROM 82 and RAM 83. The CPU 81 executes various processes based on input signals supplied from the control buttons 65 when indications are input by operations of a player, and data and/or programs stored in the ROM 82 and RAM 83. Further, the CPU 81, according to executed processes, transmits results of the processes to the CPU 71 of the main control unit 70 mentioned above, and controls the peripheral equipments constituting the satellite 58. The ROM 82 stores programs, image data, etc. for realizing the basic functions of the satellite 58. The RAM 83 stores value read from a house card, and temporarily stores results obtained through various processes.

[0090] The control unit 80 is connected with the control buttons 65, the chip counter 69, the R/W 86 and the chip detection unit 88. When the control button 65 is operated, a command signal in accordance with the type of the control button is supplied to the CPU 81. The CPU 81 executes various processes according to the signal supplied. The chip counter 69 is constituted like a conventionally publicly known coin counter, and operates by a driving command supplied from the CPU 81 to count chips dropped in the chip insertion opening 66. Chips counted by the chip counter 69 are reserved in the hopper 87. The R/W 86 is a device capable of reading data from a house card and writing data into the house card inserted in the card insertion slot 60. The R/W 86 executes, for example, a process of reading value stored in the house card, a process of adding value to the value stored in the house card to store the same, and the like. The chip detection unit 88 detects chips paid out from the hopper 87 and sends a detection signal to the CPU 81.

[0091] In addition, the control unit 80 is connected with the value display 62, the image display device 63

and the hopper 87. The value display 62 is used for displaying value read from the house card by the R/W 86 and constituted, for example, of a 7-segment display, a LED display, or the like. The value display 62 displays value according to a driving command sent from the CPU 81 according to the change of value read from the house card. Further, the display device 63 is constituted, for example, of a liquid crystal display, a LED display, or the like, and displays various information related to the progress of a game such as error messages based on imaging commands, etc. supplied by the CPU 81.

[0092] The hopper 87 is used for paying out chips and operates based on a driving signal supplied by the CPU 81. The chip detection unit 88 sends a detection signal to the CPU 81 when detecting chips paid out from the hopper 87. On the other hand, the CPU 81 sends a stop command signal for stopping the payout of chips to the hopper 87 when determining by the detection signal that a predetermined number of chips have been paid out.

[0093] In the following, it is assumed that the roulette table 50 has been started, variables used by the CPUs 71 and 81 mentioned above have been initialized to predetermined values, and the roulette table 50 is under normal operating conditions. Next, an example of subroutine executed by the control unit 80 will be described with reference to Fig. 8.

[0094] Fig. 8 is a flow chart showing a subroutine related to the output and input of chips executed by the control unit 80. This subroutine is called at a predetermined time from the program being executed in advance, and is then executed.

[0095] Firstly, the CPU 81 determines whether a house card has been inserted in the card insertion slot 60 (step S60). That is, the CPU 81 sends a command signal to the R/W 86 to make the R/W 86 recognize whether a house card has been inserted in the card insertion slot 60. When the R/W 86 recognizes that a house card has been inserted in the card insertion slot 60, it sends a recognition signal to the CPU 81. The CPU 81 determines whether a house card has been inserted in the card insertion slot 60 based on whether it has received the recognition signal or not.

[0096] When the CPU 81 determines that a house card has been inserted in the card insertion slot 60, it executes the process of reading value information stored in the house card (step S61). That is, the CPU 81 firstly drives the R/W 86 to take the house card into the satellite 58 through the card insertion slot 60 to prevent the player from freely taking out and inserting the house card through the card insertion slot 60. After that, the CPU 81 drives the R/W 86 to read value information stored in the house card and store it in the RAM 83. At that time, the CPU 81 drives the value display 62 to display the value information stored in the RAM 83.

[0097] When it is determined in step S60 that no house card has been inserted in the card insertion slot 60, or process of step S61 has finished, the CPU 81 determines whether the indication of paying out chips has

been input (step S62). When a player plays a game using a house card mentioned above at the roulette table 50, the player firstly needs to allow the satellite 58 to pay out value in the house card inserted, as chips. An indication of paying out (providing) chips is input by operating the control buttons, based on an indication or the like by a predetermined image displayed on the displaying device 63, and includes data related to how many chips are paid out, and the like.

[0098] When it is determined in step S62 that an indication of paying out (providing) chips has been input, the CPU 81 executes the process of driving the hopper to pay out chips based on the type and minimum amount of game medium according to the indication. As the result, as many chips as indicated by the indication are paid out. Next, the CPU 81 executes the process of subtracting value corresponding to coins paid out from the value stored in the RAM 83 (step S64). At that time, the CPU 81 executes the process of driving the value display 62 to allow it to display the value stored in the RAM 83. At that time, the roulette table 50 functions as a game medium providing device for providing chips (physical game mediums) within the value stored in the house card.

[0099] When it is determined in step S62 that no indication of paying out (providing) chips has been input, or the process of step S64 has finished, the CPU 81 determines whether the indication of account of chips in hand has been input (step S65). This indication is executed through the control button 65.

[0100] When it is determined in step S65 that no indication of account of chips in hand has been input, the CPU 81 finishes this subroutine. On the other hand, when it is determined in step S65 that the indication of account of chips in hand has been input, the CPU 81 executes the process of leaving open the openable cover of the chip insertion opening 66 (step S66). As the result, it becomes possible for the player to drop chips in hand in the chip insertion opening 66.

[0101] Next, the CPU 81 determines whether the indication of completing the insertion of chips has been input by means of the control buttons 65 (step S67). When determined that no indication of finishing the insertion of a chip has been input, the CPU 81 returns the procedure to step S66, and allows the openable cover to be left open.

[0102] On the other hand, when it is determined in step S67 that the indication of completing the insertion of chips has been input, the CPU 81 executes the process of closing the openable cover of the chip insertion opening 66 (step S68). The CPU 31 moreover operates the chip counter 69 to count the chips dropped in the chip insertion opening 66 (step S69). Next, the CPU 81 drives the R/W 86 to store the chips counted as value exchanged in a predetermined exchange rate, into the house card (step S70), and then finishes this subroutine. At that time, the roulette table functions as a value recording device for adding value equivalent to the game

mediums dropped in, to the value stored in the house card.

[0103] Next, a procedure for playing a game by the roulette table 50 will be described. (1) Firstly, a player inserts a house card into the card insertion slot 60. As the result, the value stored in the house card is displayed on the value display 62, and an image prompting the player to select how much value is exchanged to chips is displayed on the display device 63. The player operates the control buttons 65 to input a desired face value and/or number of chips within the value stored in the house card, and then as many chips as the face value and/or number which has been input are provided from the chip payout opening 67, the value stored in the house card is reduced, and the result of the reduction is displayed on the value display 62.

[0104] (2) Next, the player plays the game of roulette using the chips provided. The player assumes the number of a pocket where a small ball thrown in the rotary board 56 by the dealer will stop, and places chips of a predetermined minimum bet or more on the roulette list 53. When the number of the pocket where the small ball thrown in the rotary board 56 has stopped matches the number of the area where the chips have been placed, the player can obtain as many chips as those corresponding to the wager. At that time, the chips are handed over to the player by an attendant. Here, the game of roulette itself is played between a dealer and a player, and processes in the roulette table 50 (satellites 58) do not directly relate to the game.

[0105] (3) When finishing the game, the player may drop the obtained chips in the chip insertion opening so that the value to which the chips are exchanged at a predetermined exchange rate is stored in the house card. The player may, of course, finish the game while keeping chips in hand.

[0106] As described above, according to the roulette table of the invention, when a player possesses no chip, but has one house card, the player may get chips provided from the roulette table using the house card to start a game. For this reason, the troublesomeness of carrying a number of chips to play games in a game arcade can be eliminated.

[0107] Furthermore, it is possible that when starting a game, chips usable for a roulette table are provided from the roulette table, and when finishing the game, chips in hand can be added, as value to which the chips are exchanged at a predetermined exchange rate, to the value stored in the house card. For this reason, it is not necessary to implement complicate work for exchange of coins, or the like also between games provided by the same gaming machine or games provided by different gaming machines, requesting different minimum bets or denominations, and thereby the player may play two or more types of games provided by the same gaming machine, or games provided by two or more gaming machines, on a consecutive basis. Furthermore, it can be prevented that the player loses interest in games or the

player's excitement for games tones down; moreover, the interest or excitement may increase cumulatively; and thereby it becomes possible that the player get deeply involved in games. Furthermore, time is not consumed for the exchange of game mediums, and thereby it becomes possible that the game arcade secures its profit sufficiently.

[0108] In this connection, although the roulette table mentioned above are provided with a game medium providing device and a value recording device every seat, a roulette table according to the gaming machine of the invention may be provided with one game medium providing device and one value recording device per table.

[0109] Heretofore, as preferred embodiments of a gaming machine according to the present invention, the invention is applied to a slot machine and a roulette table, but the gaming machine according to the present invention may be applied also to a card game table, a dice game table, a video poker table, or the like. For these gaming machines, a type and minimum amount of a game medium are defined individually.

[0110] Furthermore, in the case of these gaming machines, a denomination of a game medium is also defined in addition to a type and minimum amount of a game medium. For example, in the case of a gaming machine such as a slot machine for which a game medium to be inserted is one kind of game medium, denomination of the game medium is of one kind and is equivalent to the minimum amount of the game medium. On the other hand, in the case of a gaming machine such as a roulette table for which game mediums to be used are not limited to one kind, there may be two or more kinds of denominations (\$80, \$100, or the like) of game mediums.

[0111] Thus, in the case of a gaming machine such as a slot machine for which a game medium to be inserted is limited to one kind, the game medium providing device provides game mediums within the value based on the type and minimum amount of the game medium. For example, in the case of a slot machine for which the game medium is defined as a 25-cent coin, when the value of 10 dollars stored in a house card has been read, 25-cent coins up to 40 are provided within the value of 10 dollars. In this case, the number of 25-cent coins to be provided may be made selectable by a player.

[0112] On the other hand, in the case of a gaming machine such as a roulette table for which game mediums to be inserted is not limited to one kind, the game medium providing device provides game mediums within the value based on the type and minimum amount of the game medium, and the denomination and type of the game medium. For example, in the case of a roulette table for which game mediums are defined as 5-dollar chips, 25-dollar chips, 100-dollar chips and 500-dollar chips, and the minimum amount is defined as a 10-dollar chip, when the value of 100 dollars stored in a house card has been read, game mediums such as three

25-dollar chips and five 5-dollar chips are provided within the value of 100 dollars. In this case, the amount of value to be exchanged to game mediums, denominations and types of game mediums to be provided may be selected by a player.

[0113] Furthermore, the case has been described where coins and chips are used as game mediums for the slot machine and the roulette table, respectively. However, game mediums according to the present invention are not specifically limited. Furthermore there may be two or more kinds of denominations of game mediums in accordance with types of game mediums. For example, coins to be used may include 25-cent coins, 1-dollar coins, and the like, and chips to be used may include 5-dollar chips, 25-dollar chips, 100-dollar chips, 500-dollar chips, and the like.

[0114] Next, as a preferable embodiment of a gaming system according to the invention, a gaming system applied to a game arcade will be described. Fig. 9 is a schematic diagram showing an example of a game arcade according to the present invention.

[0115] In the game arcade 100, a house card issuing device (storage medium issuing device) 200 and a converting device 300 are located. In the game arcade 100, three slot machines 10A to 10C, two roulette tables 50A and 50B, and two card game tables 90A and 90B are also located as gaming machines. For these gaming machines, different minimum bets and unit costs for games have been defined respectively so that players can select games and gaming machines depending on their money in hand, or the like. The slot machines 10 (10A to 10C) are similar to that shown in Fig. 1, and the roulette tables 50 (50A and 50B) are similar to that shown in Fig. 5. Explanation of them is omitted here.

[0116] For the card game tables 90 (90A and 90B), types and minimum amounts of game mediums to be used are defined such that, for example, the minimum bet is a 5-dollar chip. The card game tables 90 correspond to a gaming machine according to the invention. That is, the card game table 90 is provided with a plurality of satellites similar to the satellite 58 provided to the roulette table 50, and functions as a game medium providing device for providing game mediums within the value stored in the house card. Further, the card game table 90 functions as a value recording device for adding game mediums obtained through a game or game mediums which has been input in the card game table to the value stored in the house card after exchanging them at a predetermined rate to store the same. The card game tables 90 have the same constitution as a conventionally publicly known card game table except that they have the same satellite as the satellite 58 provided for the roulette table 60. Since the satellite 58 has been already explained, explanation about it is omitted here.

[0117] Furthermore, in the game arcade 100, a host computer 110 is also located, which is connected with the various gaming machines, the house card issuing

device 200 and the converting device 300 mentioned above through a communication line 101. The operation of the gaming system applied to the game arcade 100 will be described later. Before that, the house card issuing device 200, the converting device 300, and the host computer 110 are described below.

[0118] Fig. 10 is a perspective view schematically showing the house card issuing device shown in Fig. 9. The main unit 201 of the house card issuing device 200 is provided with a control stand 202 which projects frontward. On the top face of the control stand 202, a plurality of control buttons 205, a ten-key 218 capable of inputting the numerals of "0" to "9", a credit card reader 206 which receives a credit card and reads data stored in the credit card, and a coin slot 208 are provided.

[0119] At the lower side of the control stand 202, a bill insertion slot 203 is provided, inside of which a bill validator 214 (not shown in Fig. 10, but see Fig. 11) for discriminating a bill inserted from the bill insertion slot 203 is located. In addition, at the lower side of the bill insertion slot 203, a house card issuing slot 204 is provided, inside of which a R/W 216 and a card issuing unit 219 are located. The R/W 216 mainly stores data such as value into house cards, and the card issuing unit 219 issues house cards in which data such as value is stored.

[0120] On a substantially center part of the front face of the main unit 201, a display unit 207 is provided. On the display unit 207, an image or the like, which prompts a player to input an indication necessary to issue a house card, is displayed when the control button 205 or the ten-key 218 is operated, a bill is inserted in the bill insertion slot 203, or a coin is dropped in the coin slot 208. Further, above the display unit 207, two speakers 209 are provided, which generate voice prompting a player to input an indication necessary to issue a house card, sound effects, or the like.

[0121] Fig. 11 is a block diagram showing the internal structure of the house card issuing device 200 shown in Fig. 10. The house card issuing device 200 comprises a control unit 210 and its peripheral equipments. The control unit 210 is provided with a CPU 211, ROM 212, RAM 213 and communication interface circuit 217. The CPU 211 controls peripheral equipments constituting the house card issuing device 200 and executes the process of issuing a house card and the like, based on a command signal supplied from the control button 205 or the ten-key 218 by the operation of a player, a detection signal supplied from the coin discriminating unit 215 or the bill validator 214 when a coin is dropped in the coin slot 202 or a bill is inserted in the bill insertion slot 208 respectively, and data or programs stored in the ROM 212 and RAM 213. The ROM 212 stores programs and data such as image data and sound data for implementing the basic functions of the house card issuing device 200. The RAM 213 stores temporarily data or a program necessary for a process such as issuing a house card, which is ongoing. The communication in-

terface circuit 217 is used to communicate with various apparatuses such as the host computer 110 located in the game arcade 100 through the communication line 101.

[0122] The control unit 210 mentioned above is connected with the control buttons 205, ten-key 218, bill validator 214, coin discriminating unit 215, R/W 216 and credit card reader 206. When the control button 205 or the ten-key 218 is operated and an indication is input, a command signal corresponding to the input operation is supplied to the CPU 211. The CPU 211 goes on the process of issuing a house card, and the like based on the command signal.

[0123] The bill validator 214 is a conventionally publicly known one. When it detects a bill inserted in the bill insertion slot 203, it determines whether the bill is an authorized bill and further detects the type of the bill. The bill determined to be not an authorized one is discharged from the bill insertion slot 203. On the other hand, when it is determined that the bill is an authorized one, value equivalent to the bill is stored into the RAM 213. The coin discriminating unit 215 is a conventionally publicly known one. When it detects a coin dropped in the coin slot 208, it determines whether the coin is an authorized coin and further detects the type of the coin. The coin determined to be not an authorized one is discharged from the discharge port. On the other hand, when it is determined that the coin is an authorized one, value equivalent to the coin is stored into the RAM 213.

[0124] The R/W 216 operates by a command signal from the CPU 211, and when an indication of issuing a house card is input, the R/W 216 stores data such as value and an ID code stored in the RAM 213 into the house card. The credit card reader 206 is a unit for reading data stored in a credit card inserted in it.

[0125] The control unit 210 mentioned above is connected with the card issuing unit 219, which issues house cards storing data such as value and an ID code. Furthermore, the control unit 210 is connected with the display unit 207 and speakers 209. The display unit 207 displays an image prompting a customer to input an indication necessary to the process of issuing a house card, or the like, and the speaker 209 generates voice, sound effects, or the like.

[0126] Fig. 12 is a flow chart showing a subroutine executed by the house card issuing device 200 shown in Fig. 10. This subroutine is called out at a predetermined time from the program for controlling the operation of the house card issuing device 200, which has been executed in advance, and then executed.

[0127] Firstly, the CPU 211 determines whether a coin has been dropped in the coin slot 208 (step S200). That is, the CPU 211 determines whether a coin has been dropped in the coin slot 208 by determining whether the CPU 211 has received a discrimination signal from the coin discriminating unit 215. This discrimination signal includes data related to the type of the coin.

[0128] When determined that a coin has been

dropped in the coin slot 208, the CPU 211 executes the process of adding value equivalent to the coin dropped in, to the value stored in the RAM 213 (step S201) to store the same. For example, when the value of 100 dollars has already been stored in the RAM 213 and it is determined in step S200 that a 5-dollar coin has been dropped in, the CPU 211 stores the value as 105 dollars into the RAM 213.

[0129] When it is determined in step S200 that no coin has been dropped in, or the process of step S201 has finished, the CPU 211 determines whether a bill has been inserted in the bill insertion slot 203 (step S202). That is, the CPU 211 determines whether a bill has been inserted in the bill insertion slot 203 by determining whether the CPU 211 has received a discrimination signal from the bill validator 214. The discrimination signal includes data related to the type of the bill.

[0130] When determined that a bill has been inserted in the bill insertion slot 203, the CPU 211 executes the process of adding value equivalent to the inserted bill to the value stored in the RAM 213 to store the same (step S203). For example, when the value of 105 dollars has already been stored in the RAM 213 and it is determined in step S202 that a 100-dollar bill has been inserted, the CPU 211 stores the value as 205 dollars into the RAM 213.

[0131] When it is determined that no bill has been inserted, or the process of step S203 has finished, the CPU 211 determines whether a credit card has been inserted in the card reader 206 (step S204). That is, the CPU 211 sends a command signal to the credit card reader 206 to make it recognize whether a credit card has been inserted in the card reader 206. When the credit card reader 206 recognizes that a credit card has been inserted in the card reader 206, it sends a recognition signal to the CPU 211. The CPU 211 determines whether a credit card has been inserted by determining whether it has received the recognition signal.

[0132] When determined that a credit card has been inserted, the CPU 211 executes the card payment process (step S205). That is, the CPU 211 reads the information stored in the credit card, and prompts the player to input the password by making the display unit 207 display a predetermined image. When the password has been input, the CPU 211 sends a signal of requesting permission for the use of the credit card to an external place (e.g. a card certification center, or the like) through the communication interface circuit 217. At the card certification center or the like, existence or absence of unauthorized use or the like is determined. When the use of the card is permitted, a signal permitting the use of the card is sent. When the CPU 211 has received the signal permitting the use of the card through the communication interface circuit 217 from the external place, it sends a signal to the external place according to the numerical value (information about value to be stored into the house card and the like) which is input through the control button 205 or the ten-key 218. Furthermore,

payment is also implemented by another routine based on these signals. The description of payment by a credit card is omitted here. When the process of step S205 has finished, the CPU 211 executes the process of newly adding value to the value stored in the RAM 213 (step S206).

[0133] When it is determined in step S204 that no credit card has been inserted, or the process of step S206 has finished, the CPU 211 determines whether an indication of issuing a house card has been input through the control button 205 or the ten-key 218 (step S207). An indication of issuing a house card is input through the control button 205 by the player after insertion of coins or bills, or payment by the credit card has finished. When determined that no indication of issuing a house card has been input, the CPU 211 finishes this subroutine.

[0134] On the other hand, when determined that an indication of issuing a house card has been input, the CPU 211 executes the process of driving the R/W 216 to allow it to store value into a house card stored in a predetermined place in the house card issuing device 200. Next, the CPU 211 executes the process of driving the card issuing unit 219 to issue a house card in which value is stored (step S209), and then finishes this subroutine. At that time, the house card issuing device 200 functions as a value inputting device for storing value corresponding to the inserted coins, bills or the amount paid by the credit card into a house card. And the house card issuing device 200 functions as an issuing device for issuing a house card storing the value.

[0135] In the house card issuing device 200 mentioned above, a player may decide value to be stored in a house card. However, a house card issuing device of a gaming system according to the present invention may be so arranged that predetermined value (e.g. 100 dollars, 1000 dollars, 10000 dollars, or the like) has been previously stored in a house card, which can be issued when a player drops coins equivalent to the predetermined value into the house card issuing device. Furthermore, the functions (functions of a value inputting device and/or a storage medium issuing device) of the house card issuing device 200 mentioned above may be included in gaming machines. Since the gaming machine has the function of handling house cards, small modification such as addition of a coin slot and a coin counter is sufficient to make the gaming machine include the function of issuing house cards.

[0136] For example, in order to allow the slot machine 10 to include the function of the house card issuing device 200 (see Figs. 1 and 10), the slot machine 10 shown in Fig. 1 may be provided with a credit card reader 44 and a bill insertion slot 45 corresponding to the credit card reader 206 and the bill insertion slot 203, respectively, of the house card issuing device 200 shown in Fig. 10. Further, the slot machine 10 shown in Fig. 1 may share the card insertion slot 20 as an opening corresponding to the card issuing slot 204 of the house card

issuing device 200 shown in Fig. 10. Further, the slot machine 10 shown in Fig. 1 may share the coin slot 19 as an opening corresponding to the coin slot 208 of the house card issuing device 200 shown in Fig. 10. Furthermore, as for the ten-key 218 of the house card issuing device 200 shown in Fig. 10, the display device 23 of the slot machine shown in Fig. 1 may be changed to a touch panel to display a ten-key 46 thereon. [0144] Furthermore, the slot machine 10 may be provided, as shown in the block diagram of Fig. 2, with a bill validator 47 and a card issuing unit 48 corresponding to the bill validator 214 and the card issuing unit 219, respectively, in the block diagram of the house card issuing device 200 shown in Fig. 11. Further, the slot machine 10 may utilize the discrimination sensor 40, as shown in the block diagram of Fig. 2, as a unit corresponding to the coin discriminating unit 215 in the block diagram of the house card issuing device 200 shown in Fig. 11.

[0137] Next, a converting device 300 according to a gaming system of the invention will be described with reference to the drawings. Fig. 13 is a perspective view schematically showing the converting device 300 shown in Fig. 9. At the front right side of the top face of the main unit 301 constituting the converting device 300, a house card insertion slot 302 is provided, inside which a R/W 306 is located. Further, at the front left side of the top face of the main unit 301, a game medium insertion opening 304 in which game mediums such as coins and chips can be dropped is provided, and inside of the opening a game medium counter 318 is located. This game medium counter 318 has a configuration nearly equal to a conventionally publicly known coin counter.

[0138] At the center right side of the top face of the main unit 301, a ten-key 307 capable of inputting numerals of "0" to "9" is located, and at the center left side of the top face of the main unit 301, a plurality of control buttons 306 are located. Further, at the back left side of the top face of the main unit 301, a display unit 308 is located. The display unit 308 displays images for prompting a player to input various indications. Furthermore, on the front face of the main unit 301, a coin discharge port 306 and a bill discharge port 303 are provided. Coins and bills are paid out from these ports.

[0139] Fig. 14 is a block diagram showing the internal structure of the converting device 300 shown in Fig. 13. The converting device 300 is constituted by a control unit 310 and its peripheral equipments. The control unit 310 comprises a CPU 311, a ROM 312, a RAM 313 and a communication interface circuit 317. The CPU 311 controls the peripheral equipments constituting the converting device 300 and executing the process of paying out bills and coins, based on a command signal supplied from the control button 306 or the ten-key 307 when operated by a player, signals supplied from the R/W 316 or the game medium counter 318, and data and programs stored in the ROM 312 and RAM 313. The ROM 312 stores programs and data such as image data and sound data for realizing the basic functions of the con-

verting device 300. The RAM 313 stores temporarily data and a program necessary for a process such as the process of paying out bills or coins, which is ongoing. The communication interface circuit 317 is used to communicate with various apparatuses such as the host computer 110 through communication lines 101.

[0140] The control unit 310 mentioned above is connected with the control buttons 306, ten-key 307, R/W 316 and game medium counter 318. When the control button 306 or the ten-key 307 is operated and an indication is input, a command signal corresponding to the input operation is supplied to the CPU 311. The CPU 311 progresses the process of paying out bills or coins, and the like based on the command signal.

[0141] The R/W 316 operates by a command signal from the CPU 311 and, when an indication of reading data such as value is input, reads data such as value stored in the house card. The CPU 311 stores the data into the RAM 313. The game medium counter 318 has a configuration nearly equal to a conventionally publicly known coin counter, and operates by a command signal from the CPU 311 to count coins or the like dropped in the game medium insertion opening 304. The CPU 311 stores value equivalent to the result into the RAM 213.

[0142] Further, the control unit 310 is connected with the display unit 308, the coin payout unit 314 and the bill payout unit 315. The display unit 308 displays various images such as an image prompting a player to input an indication necessary to the process of paying out bills or coins. The bill payout unit 315 operates by a command signal from the CPU 311 to pay out bills within the value stored in the RAM 313 from the bill discharge port 303. Further, the coin payout unit 314 operates by a command signal from the CPU 311 to pay out coins within the value stored in the RAM 313 from the coin discharge port 305. It may be constituted such that, for example, a player can select whether the value is paid out as bills or as coins by operating the control buttons 306 or the ten-key 307, or that the value is paid out as bills within a limit allowing to pay out it as bills, and the remaining value is paid out as coins.

[0143] Fig. 15 is a flow chart showing a subroutine executed in the converting device 300 shown in Fig. 13. This subroutine is called out at a predetermined time from the program controlling the operation of the converting device 300, which has been executed previously, and then executed.

[0144] Firstly, the CPU 311 determines whether a house card has been inserted in the house card insertion slot 302 (step S300). That is, the CPU 311 executes the process of sending a command signal to the R/W 316 to make it recognize whether a house card has been inserted in the house card insertion slot 302. When the R/W 316 recognizes that a house card has been inserted in the house card insertion slot 302, it sends a recognition signal to the CPU 311. The CPU 311 determines whether a house card has been inserted in the house card insertion slot 302 by determining whether it

has received the recognition signal.

[0145] When it is determined that a house card has been inserted in the house card insertion slot 302, the CPU 311 executes the operation of reading the value stored in the house card (step S301). That is, the CPU 311 drives firstly the R/W 316 to allow it to take the house card into the converting device 300 through the house card insertion slot 302 to prevent the player from freely taking out or inserting the house card from or into the house card insertion slot 302. After that, the CPU 311 drives the R/W 316 to read the value stored in the house card to store it in the RAM 313.

[0146] When it is determined in step S300 that no house card has been inserted in the house card insertion slot 302, or the process of step S301 has finished, the CPU 311 determines whether the game medium has been dropped in the game medium insertion opening 304 (step S302). That is, the CPU 311 determines whether the indication of finishing chip insertion has been input through the control button 306 or the like.

[0147] When it is determined in step S302 that the game medium has been dropped in the game medium insertion opening 304, the CPU 311 executes the process of driving the game medium counter 318 to count the game medium dropped in the game medium insertion opening 304 (step S303), and then adding value equivalent to the result of the count to the value stored in the RAM 313 to store the same (step S304).

[0148] When it is determined in step S302 that no game medium has been dropped, or the process of step S304 has finished, the CPU 311 determines whether the indication of conversion has been input through the control button 306 (step S305). When it is determined in step S305 that the indication of conversion has been input, the CPU 311 executes the process of driving the coin payout unit 314 and/or bill payout unit 315 to pay out money corresponding to the value stored in the RAM 313 (step S306). As the result, bills are paid out from the bill discharge port 303, and coins are paid out from the coin discharge port 305. Next, the CPU 311 executes the process of erasing the value stored in the RAM 313, and then finishes this subroutine. At that time, the converting device 300 functions as a game medium converting device for paying out moneys according to the game mediums dropped in or the value stored in a house card.

[0149] Fig. 16 is a block diagram showing the internal structure of the host computer 110 shown in Fig. 9. The host computer 110 comprises a hard disk drive (storage device) 118, a CPU 111, a ROM 112, a RAM 113 and a communication interface circuit 117. The hard disk drive 118 stores programs for communicating with the house card issuing device 200, the converting device 300, various gaming machines provided in the game arcade 100, and external places (e.g. a card certification center and the like). The hard disk drive 118 further stores house cards for each player, which are obtained from the house card issuing device 200, the converting de-

vice 300 and various gaming machines located in the game arcade 100, and further stores input and output values of value for each of the house cards. The communication interface circuit 117 is used to communicate with the devices as mentioned above through the communication line 101.

[0150] Fig. 17 is a flow chart showing a subroutine executed by the host computer 110 shown in Fig. 9. This subroutine is called at a predetermined time from the program of controlling the operation of the host computer, which has been executed in advance, and then executed.

[0151] Firstly, the CPU 111 sends a request signal to the house card issuing device 200, the converting device 300 and each of the gaming machines located in the game arcade 100, through the communication interface circuit 117 and the communication line 101 (step S100). This request signal is a signal requesting the machine and devices to inform the host computer 110 of a notice that value has been input/output from/to a house card. When receiving the request signal, the house card issuing device 200, the converting device 300 and each of the gaming machines located in the game arcade 100 determine whether value has been input/output from/to a house card, and when determined that value has been input/output from/to a house card, they send a response signal to the host computer 110. This response signal includes data related to ID codes stored in house cards from/to which value has been input/output, and data related to the input/output values of value. At that time, the host computer 110 functions as a value information obtaining device for obtaining the value (input/output data) and ID codes from other devices through communication the line 101.

[0152] Next, the CPU 111 determines whether it has received a response signal as mentioned above (step S101). When it is determined in step S101 that no response signal has been received, the CPU 111 finishes this subroutine. On the other hand, when it is determined in step S101 that a response signal has been received, the CPU 111 implements the authentication of the ID code obtained from the response signal (step S102).

[0153] After finishing the process in step S102, the CPU 111 determines whether the obtained ID code is an authorized ID code (step S103). When it is determined that the obtained ID code is not an authorized ID code, the CPU 111 executes the process of making a notification about the falsification (step S104), because the house card in which the obtained ID code is stored is a house card to be used in another game arcade or a house card the data in which has been falsified. This process is, for example, a process of allowing the display device of the host computer 110 to display the type, number or the like of the gaming dive on which the falsification was made, or a process of allowing the speakers of the host computer 110 to generate voice indicating the type, number or the like of the gaming dive on which the falsification was made. In addition to such process-

es, for example, when the gaming machine on which the falsification was made is a slot machine, video poker table, or the like, a process of stopping the game may be executed.

[0154] On the other hand, when it is determined in step S103 that the obtained ID code is an authorized ID code, the CPU 111 executes the process of storing an input value or an output value of value every ID code (step S106). For example, when a house card in which the value of 100 dollars is stored is issued from the house card issuing device 200, an output value of the value is 100 dollars, and when the house card is inserted in a gaming machine, an input value of the value is 100 dollars. Like this, as long as a game is played normally, when a house card used for one device is used for another device, an output value of the value from one device matches an input value of the value to another device. At that time, the host computer 110 functions as a value information record device for storing the value (input/output data) every ID code.

[0155] Next, the CPU 11 determines whether an input value and an output value match (step S106). That is, the CPU 111 compares, as describe above, an output value of value from one device with an input value of value to another device every ID code, and determine whether the input and output values of the value match.

[0156] When it is determined in step S106 that the input and output values of the value match, this subroutine is finished. On the other hand, when it is determined that the input and output values of the value do not match, the CPU 111 executes the process of making a notification about the falsification (step S104), and then finishes this subroutine.

[0157] Next, the operation of the gaming system shown in Fig. 9 will be described. In the gaming system shown in Fig. 9, procedures for playing a game may include, for example, a procedure which comprises the following steps [1] to [5].

[0158] Step [1] a house card is issued when making a payment by money or credit card; Step [2] game mediums are provided from a gaming machine using the house card; Step [3] a game is played using game mediums; Step [4] a game being played is finished; Step [5] it is finished to play a game in a game arcade.

[0159] Next, each of the steps [1] to [5] will be described in detail with reference to the drawings.

[1] Step of issuing a house card by using money or a credit card

[0160] A player who has entered the game arcade 100, firstly, needs to be issued a house card from the house card issuing device 200 by using money or a credit card (see Fig. 12). It is also possible that, at a predetermined window, a clerk is handed over money from the player, makes the house card issuing device 200 issue a house card and then hands over the house card to the player. When a house card is issued from

the house card issuing device, value and an ID code are stored in the house card. When a gaming machine has the same function as the house card issuing device 200, that is, has a value recording device and a card issuing device, the player can get a house card issued from the gaming machine. When a house card has been issued, the value output to the house card and the ID code are supplied to the host computer 110 from the house card issuing device (gaming machine) which has issued the house card. The host computer 110 stores the value output every ID code.

[2] Step of providing game mediums from a gaming machine using the house card

[0161] The player selects a gaming machine he wants to play from various gaming machines provided in the game arcade 100, and then inserts the house card in the card insertion slot provided on the gaming machine.

As the result, the value and ID code stored in the house card are read. At that time, the input value of the value and ID code are supplied to the host computer 110 from the gaming machine through the communication line 101. The host computer 110 stores the input value of the value every ID code. When the host computer 110 determines, as a result of the authentication of the ID code, that the house card is a house card for another game arcade, or determines, based on the input and output values of value, that the data stored in the house card has been falsified, the host computer 110 makes a notification of fraud (see Fig. 17).

[0162] The gaming machine provides game mediums such as coins, chips or the like within the value, based on types and minimum amounts of game mediums defined by the gaming machine, according to the indication and the like of the player (see Figs. 3 and 8). In slot machines and the like at this time, game mediums may be provided as the number of credits instead of coins or chips.

[3] Step of playing a game using game mediums

[0163] The game mediums provided from a gaming machine in step [2] have been provided based on the types and minimum amounts of game mediums defined by the gaming machine, and may be used for the gaming machine. Procedures for playing games of gaming machines have been already described, and are not described again here. When the game mediums are used up in the progress of a game, further game mediums may be provided according to the procedure of [2].

[4] Step of finishing a game being played

[0164] In step [3], when the game mediums obtained through the game is stored as credits, value equivalent to the game mediums is added to the value stored in the house card by the operation of the player. If there are

game mediums such as chips or coins in hand, when the game mediums are dropped in the gaming machine, value equivalent to the game mediums is added to the value stored in the house card by the operation of the player. As the result, game mediums obtained through the game are stored as value in the house card, and thereby the player may start a game of another gaming machine after the procedure of [2] mentioned above, or finish to play a game in the game arcade according to the procedure of [5] described later, without carrying a number of game mediums. The player may, of course, finish the game while possessing game mediums in hand. At that time, output values of value and ID codes are supplied to the host computer 110 through the communication line 101, and the host computer 110 stores the output value of value every ID.

[0165] As described above, the player does not need to implement complicate work for exchange of coins, or the like, and may play two or more types of games provided by the same gaming machine, or games provided by two or more gaming machines, on a consecutive basis, by repeating steps [2] to [4]. As the result, it can be prevented that the player loses interest in games or the player's excitement for games tones down; moreover, the interest or excitement may be increased cumulatively, and thereby it becomes possible that the player get deeply involved in games. Furthermore, time is not consumed for the exchange of game mediums, and thereby it becomes possible that the game arcade secures its profit sufficiently.

[5] Step of finishing a game in a game arcade

[0166] A player who finishes playing a game in the game arcade 100 may make the value in the house card be paid out as moneys by the converting device 300 (see Fig. 15). It is also possible that, at a predetermined window, a clerk is handed over the house card from the player, makes the converting device 300 pay out cash, and hands over the cash to the player. At that time, the value (input/output data) and ID code read out from the house card are supplied to the host computer 110 through the communication line 101. When the host computer 110 determines, as the result of the authentication of the ID code, that the house card is a house card for another game arcade, or determines, based on the input and output values of the value, that the data stored in the house card has been falsified, the host computer 110 makes a notification of fraud (see Fig. 17).

[0167] The converting device 300 pays out moneys according to the value which has read out from the house card. It is also possible that the converting device 300 makes a payout through a credit card. When a gaming machine has the same function as the converting device 300 as a game medium converting device, a player can pay out money with the game machine.

[0168] For example, in order to include the function of the converting device 300 (see Figs. 1 and 13) into the

slot machine 10, the slot machine 10 shown in Fig. 1 may use the coin insertion slot 19 as an equivalent of the game medium insertion opening 304 of the converting device 300 shown in Fig. 13. Further, the slot machine 10 shown in Fig. 1 may share the bill insertion slot 45 as an equivalent of the bill discharge port 303 of the converting device 300 shown in Fig. 13. Further, the slot machine 10 shown in Fig. 1 may share the coin payout opening 18 as an equivalent of the coin discharge port 305 of the converting device 300 shown in Fig. 13. Furthermore, as for the ten-key 307 of the converting device 300 shown in Fig. 13, the display device 23 of the slot machine shown in Fig. 1 may be changed to a touch panel to display a ten-key thereon.

[0169] Furthermore, the slot machine 10 may be provided, as shown in the block diagram of Fig. 2, with a bill payout unit 49 corresponding to the bill payout unit 315 in the block diagram of the converting device 300 shown in Fig. 14. Further, the slot machine 10 may utilize a hopper 37, as shown in the block diagram of Fig. 2, as a unit corresponding to the coin payout unit 314 in the block diagram of the converting device 300 shown in Fig. 14. Further, the slot machine 10 may utilize the discrimination sensor 40, as shown in the block diagram of Fig. 2, as a unit corresponding to the game medium counter 318 in the block diagram of the converting device 300 shown in Fig. 14.

[0170] As described above, according to the gaming system of the invention, when a player does not possess a coin or the like, but has one house card, the player may use the house card commonly for two or more types of gaming machines, and get offer of coins with the house card, and thereby the troublesomeness of carrying a number of coins to play games in a game arcade can be eliminated.

[0171] Further, since a house card in which value to be exchanged to coins can be commonly used for two or more types of gaming machines, it is not necessary to implement the annoying exchange of the game mediums with the different game mediums (gameing machine) or with the different denominations. Thus, it can be prevented that the player loses interest in games or the player's excitement for games tones down; moreover, the interest or excitement may be increased cumulatively; and thereby it becomes possible that the player get deeply involved in games. Furthermore, time is not consumed for the exchange of coins or the like, and thereby it becomes possible that the game arcade secures its profit sufficiently.

[0172] In the gaming system shown in Fig. 9, since the value (input/output data) is stored every ID code in the host computer, these data can be controlled in real time in an integrated fashion. Based on these data it can be recognized speedily and securely, for example, that a house card for another game arcade has been used or data such as value has been falsified. As the result, it is possible to respond quickly to unfair gaming procedures, and it can be prevented that unfair gaming pro-

cedures, etc. are performed.

[0173] In the gaming system shown in Fig. 9, each gaming machine comprises a game medium providing device for reading value stored in a house card and providing game mediums within the value based on predetermined types and minimum amounts of game mediums, and a value recording device for adding value equivalent to game mediums obtained through a game play or equivalent to physical game mediums dropped in, to the value stored in the house card. However, in a gaming system according to the present invention, it is also possible to provide a device comprising a game medium providing device and a value recording device in addition to gaming machines.

[0174] Further, the roulette tables 50 (50A, 50B) and the card game tables 90 (90A, 90B) have a game medium providing device and a value recording device every satellite, but each gaming machine may have one game medium providing device and one value recording device.

[0175] The gaming system shown in Fig. 9 has the house card issuing device 200 and the converting device 300 as discrete ones, but may have one device having the functions of both of them.

[0176] In the gaming system shown in Fig. 9, devices locate in the game arcade are connected with each other through communication lines but, in the invention, it is not always necessary that each of the devices in the game arcade is connected with other devices through communication lines. Further, in the gaming system shown in Fig. 9, all of the devices located in the game arcade 100 are connected with each other through the communication line 101, but, in a gaming system according to the invention, devices connected with each other through communication lines are not particularly limited. For example, only the host computer and the gaming machines may be connected with each other through communication lines, or the host computer, gaming machines, and house card issuing device may be connected with each other through communication lines.

[0177] According to the invention, since a player may start a game by getting game mediums from a gaming machine when carrying a storage medium, the troublesomeness of carrying a number of game mediums to play games in a game arcade can be eliminated. Furthermore, when starting a game, game mediums used for a gaming machine are provided from the gaming machine, and when finishing the game, game mediums obtained through the game or game mediums dropped in are added, as value to which the game mediums are exchanged at a predetermined exchange rate, to the value stored in a storage medium. For this reason, it is not necessary to implement complicate work for the exchange of game mediums even between games provided by the same gaming machine or games provided by different gaming machines requesting different minimum bets or denominations, and thereby the player may

play two or more types of games provided by the same gaming machine, or games provided by two or more gaming machines, on a consecutive basis.

[0178] From the invention thus described, it will be obvious that the invention may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intended for inclusion within the scope of the following claims.

Claims

1. A gaming machine comprising:
 - a storage medium;
 - a game medium providing device for providing a game medium for a game, stored in the storage medium; and
 - a value recording device for recording a value of the game medium at a predetermined rate on the storage medium, based on a result of the game.
2. The gaming machine according to Claim 1, wherein the game medium is utilized in a plurality of gaming machines including the gaming machine, wherein types and minimum bets of the gaming machines differ between at least two of the gaming machines, and wherein the storage medium is utilized in each of the gaming machines.
3. The gaming machine according to Claim 1 or 2, further comprising:
 - a storage medium issuing device for issuing the storage medium,
 wherein the storage medium is utilized in a plurality of gaming machines including the gaming machine.
4. The gaming machine according to any of Claims 1 to 3, further comprising:
 - a game medium converting device for converting at least a portion of the value so as to pay out a physical game medium.
5. The gaming machine according to any of Claims 1 to 4, further comprising:
 - a game medium payout device for paying out at least a portion of the value as a physical game medium.
6. A gaming machine comprising:

a storage medium;
 game medium providing means for providing a
 game medium for a game, stored in the storage
 medium; and
 value recording means for recording a value of
 the game medium at a predetermined rate on
 the storage medium, based on a result of the
 game.

7. A gaming machine comprising:

a game medium providing device for providing
 a game medium for a game, stored in a storage
 medium capable of being received by the gam-
 ing machine; and
 a value recording device for recording a value
 of the game medium at a predetermined rate
 on the storage medium, based on a result of the
 game.

8. A gaming system comprising:

a storage medium; and
 a plurality of gaming machines, each of which
 utilizes the storage medium;

wherein types and minimum bets of the gaming ma-
 chines differ between at least two of the gaming ma-
 chines,

wherein each of the gaming machines comprises:

a game medium providing device for providing
 a game medium for a game, stored in the stor-
 age medium; and
 a value recording device for recording the value
 of the game medium at a predetermined rate
 on the storage medium, based on a result of the
 game.

9. The gaming system according to Claim 8,
 wherein each of the gaming machines has a storage
 medium issuing device comprising a value inputting
 device for recording a value based on a physical
 game medium inserted in at least one of the gaming
 machines, and comprising an issuing device for is-
 suing the storage medium which stores the value.

10. The gaming system according to Claim 8, further
 comprising:

a storage medium issuing machine, the storage
 medium issuing machine comprises a value in-
 putting device for recording a value based on a
 physical game medium inserted in at least one
 of the gaming machines, and comprises an is-
 suing device for issuing the storage medium
 which stores the value.

11. The gaming system according to any of Claims 8 to
 10,
 wherein each of the gaming machines further com-
 prises a game medium converting device for con-
 verting at least a portion of the value so as to pay
 out a physical game medium.

12. The gaming system according to any of Claims 8 to
 11,
 wherein each of the gaming machine further com-
 prises a game medium payout device for paying out
 at least a portion of the value as a physical game
 medium.

13. The gaming system according to Claim 12,
 wherein the game medium payout device pays out
 a predetermined amount of the game medium, and
 wherein the value recording device records a por-
 tion of the amount in the storage medium as the val-
 ue.

14. The gaming system according to Claim 9 or 10,
 wherein the value inputting device records an ID
 code on the storage medium, when recording the
 value in the storage medium based on the physical
 game medium.

15. The gaming system according to Claim 14, further
 comprising:

a host computer,

wherein the host computer comprises a value ob-
 taining device for obtaining the value and the ID
 code from the storage medium issuing device and
 at least one of the gaming machines, and
 wherein the host computer comprises a storage de-
 vice for storing the value for the ID code.

16. A gaming system comprising:

a storage medium; and
 a plurality of gaming machines, each of which
 utilizes the storage medium;

wherein types and minimum bets of the gaming ma-
 chines differ between at least two of the gaming ma-
 chines,

wherein each of the gaming machines comprises:

game medium providing means for provi ding
 a game medium for a game, stored in the stor-
 age medium; and
 value recording means for recording the value
 of the game medium at a predetermined rate
 on the storage medium, based on a result of the
 game.

17. A gaming system comprising:

a plurality of gaming machines, each of which utilizes a storage medium capable of being received by the gaming machines;

5

wherein types and minimum bets of the gaming machines differ between at least two of the gaming machines,

wherein each of the gaming machines comprises:

10

a game medium providing device for providing a game medium for a game, stored in the storage medium; and

a value recording device for recording the value of the game medium at a predetermined rate on the storage medium, based on a result of the game.

15

20

25

30

35

40

45

50

55

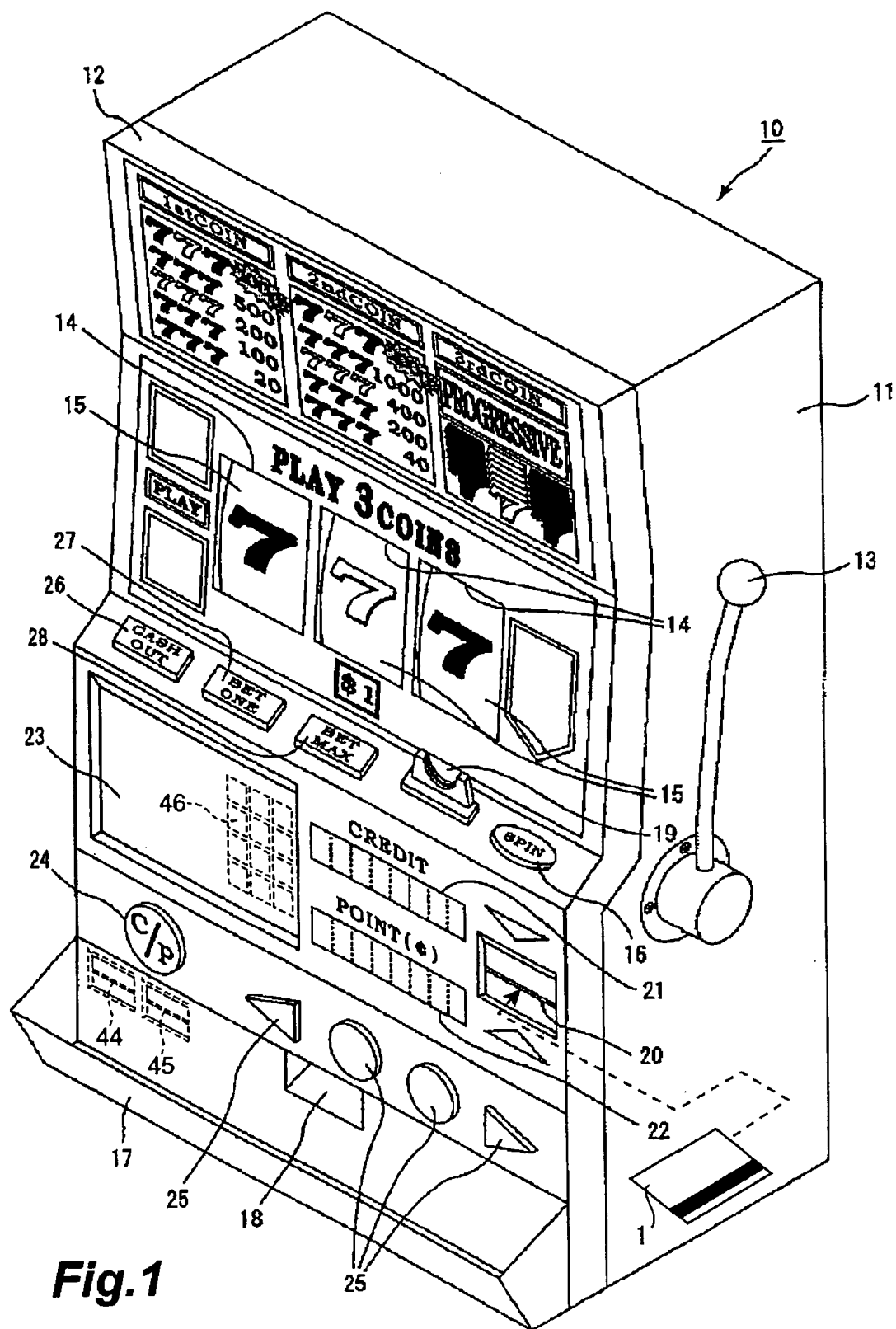


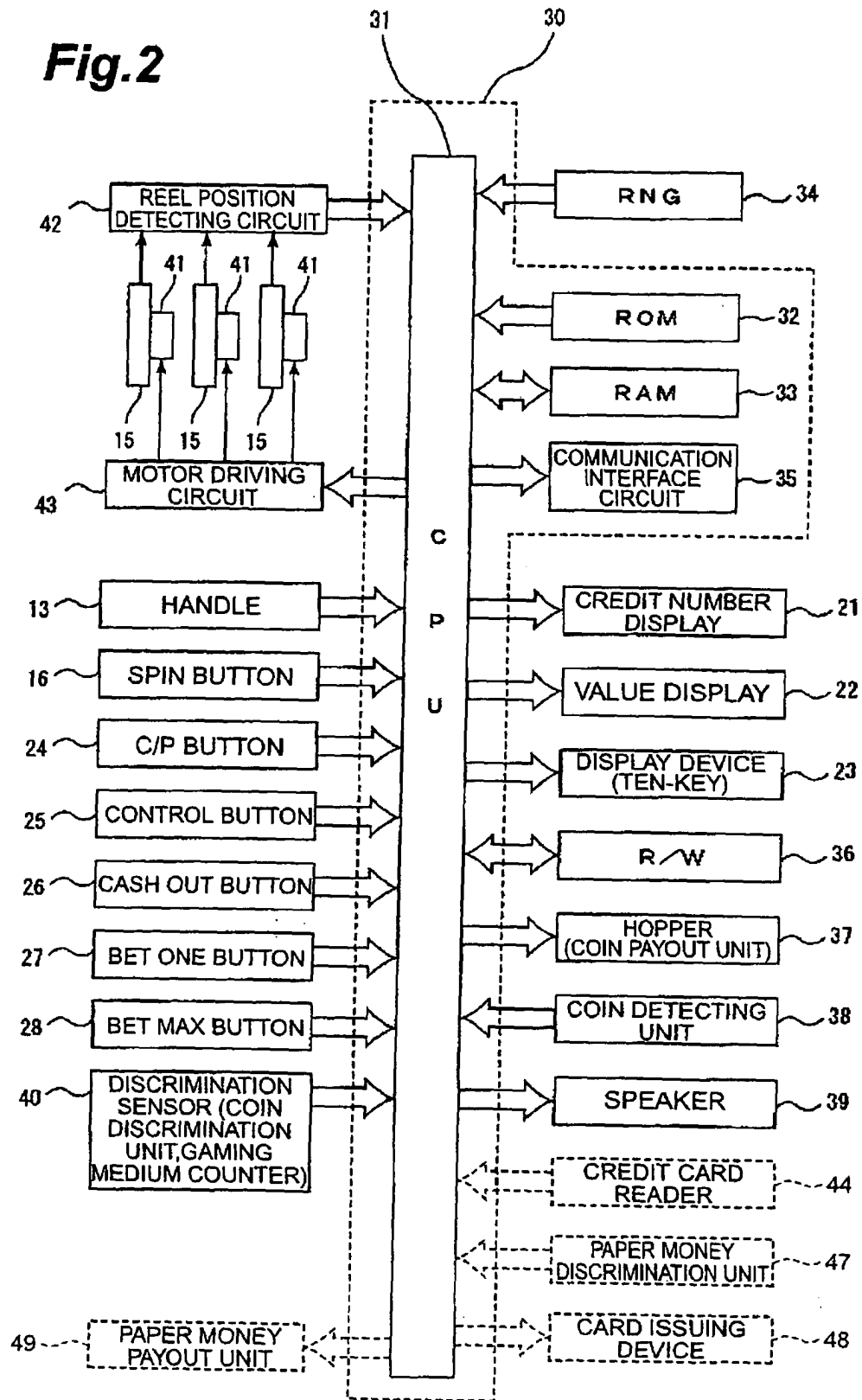
Fig.2

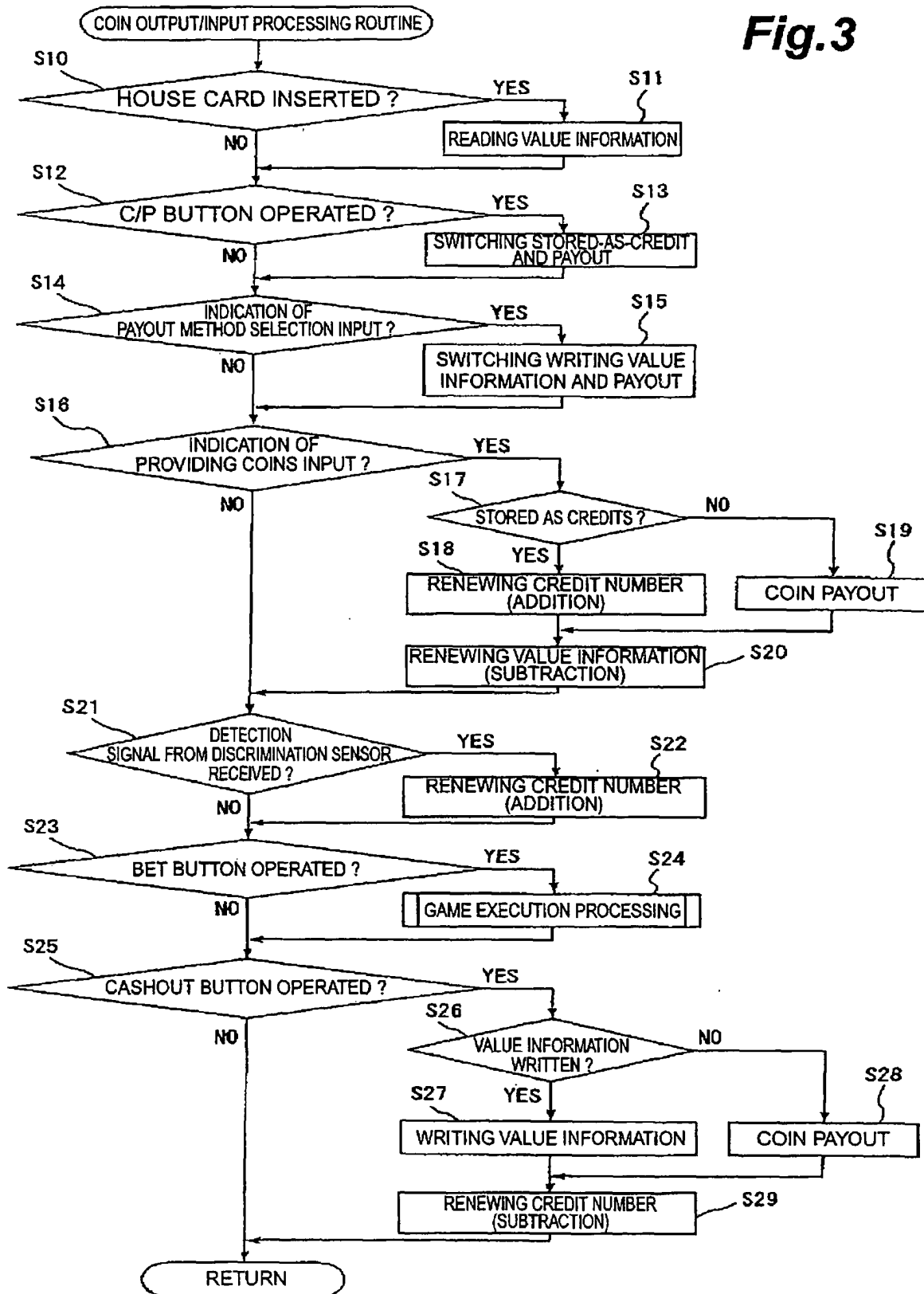
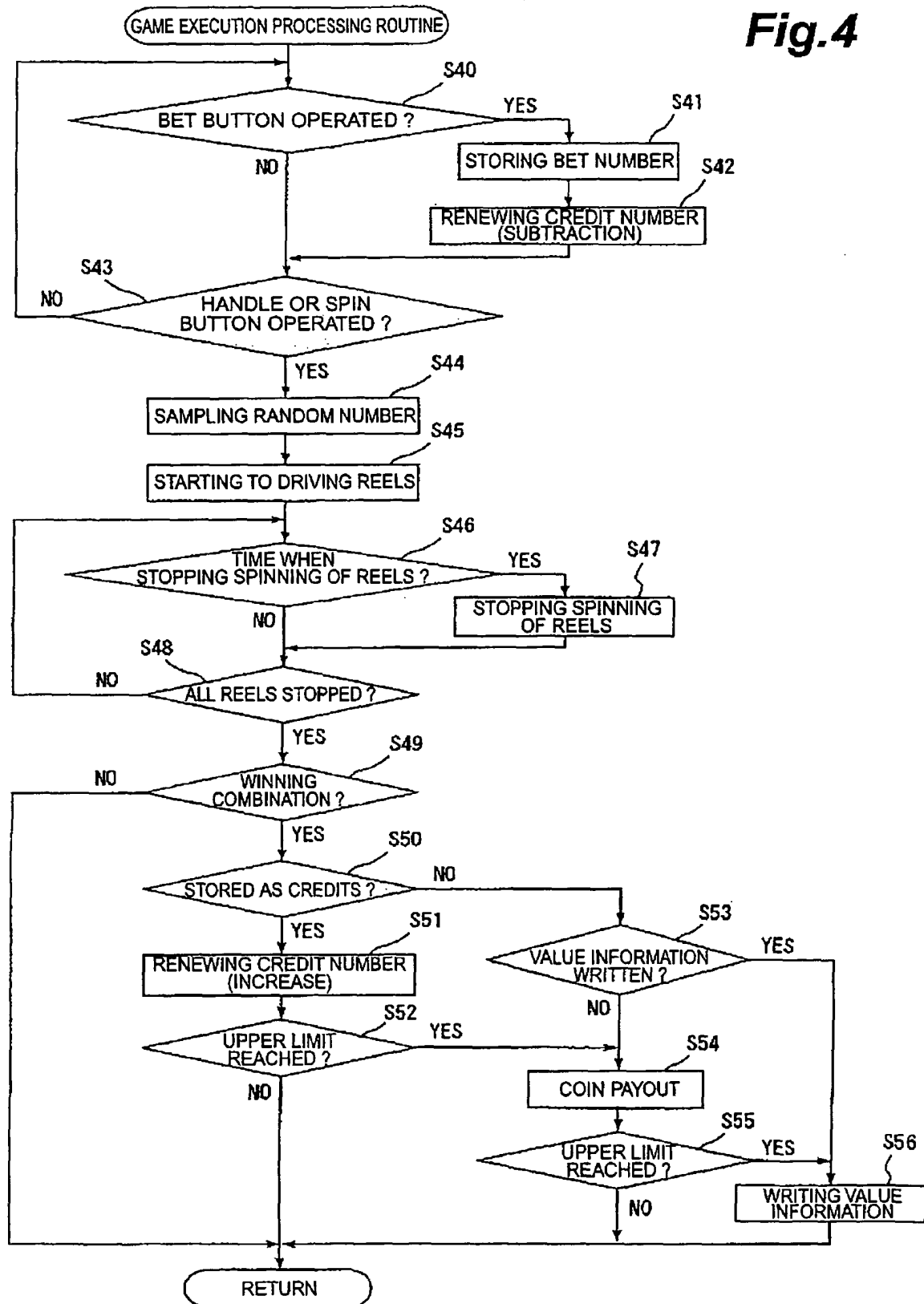
Fig.3

Fig.4

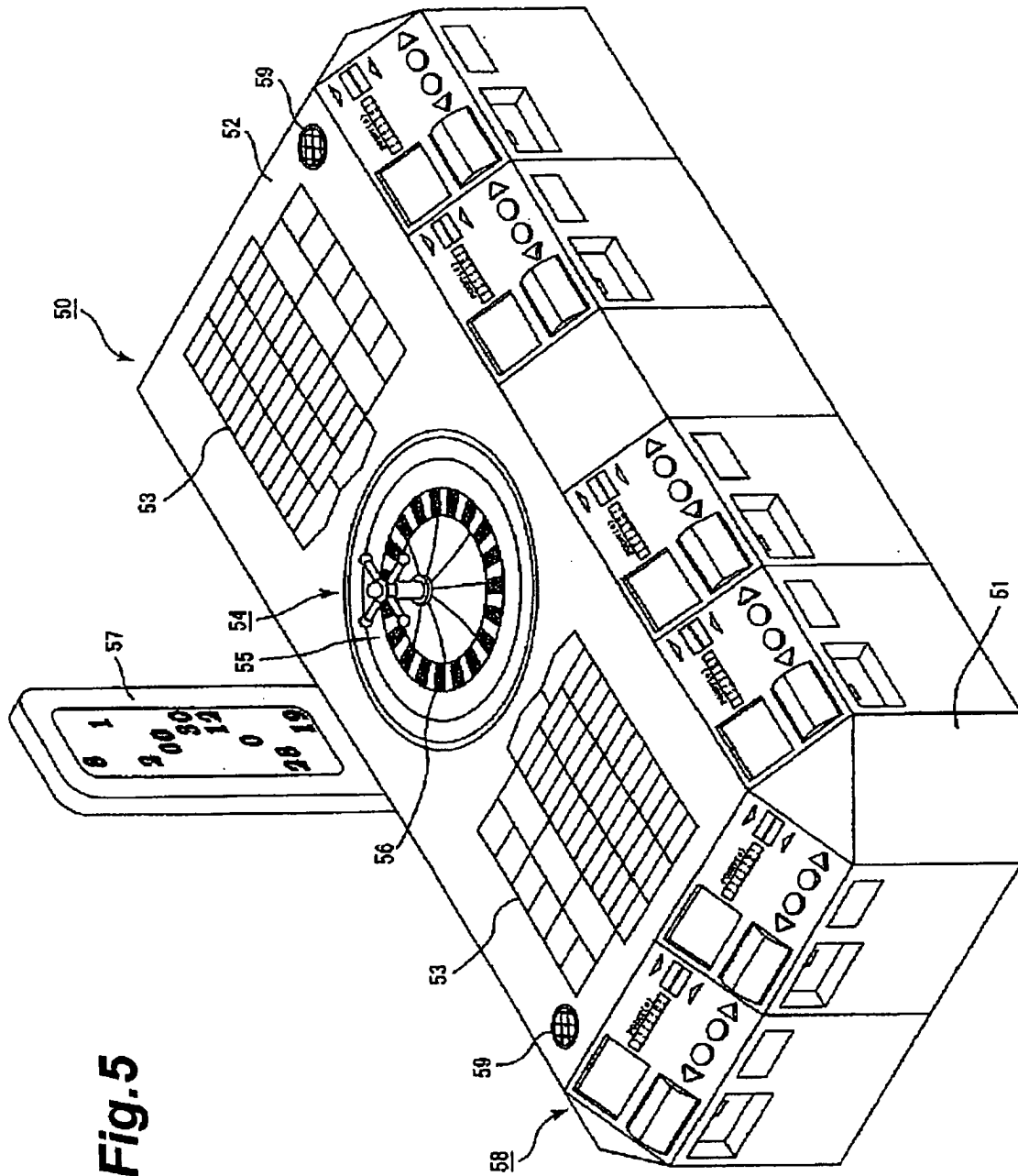


Fig. 5

Fig.6

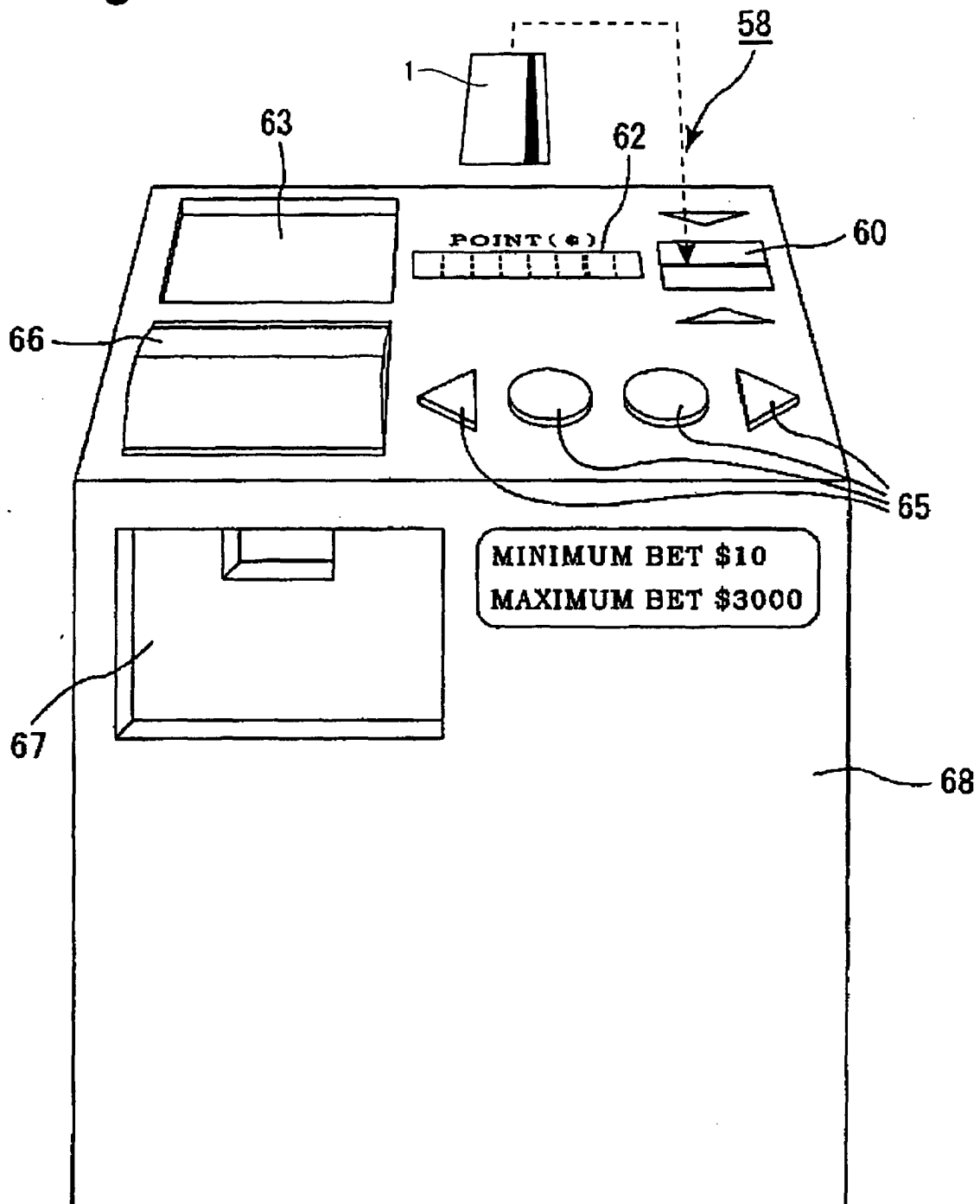


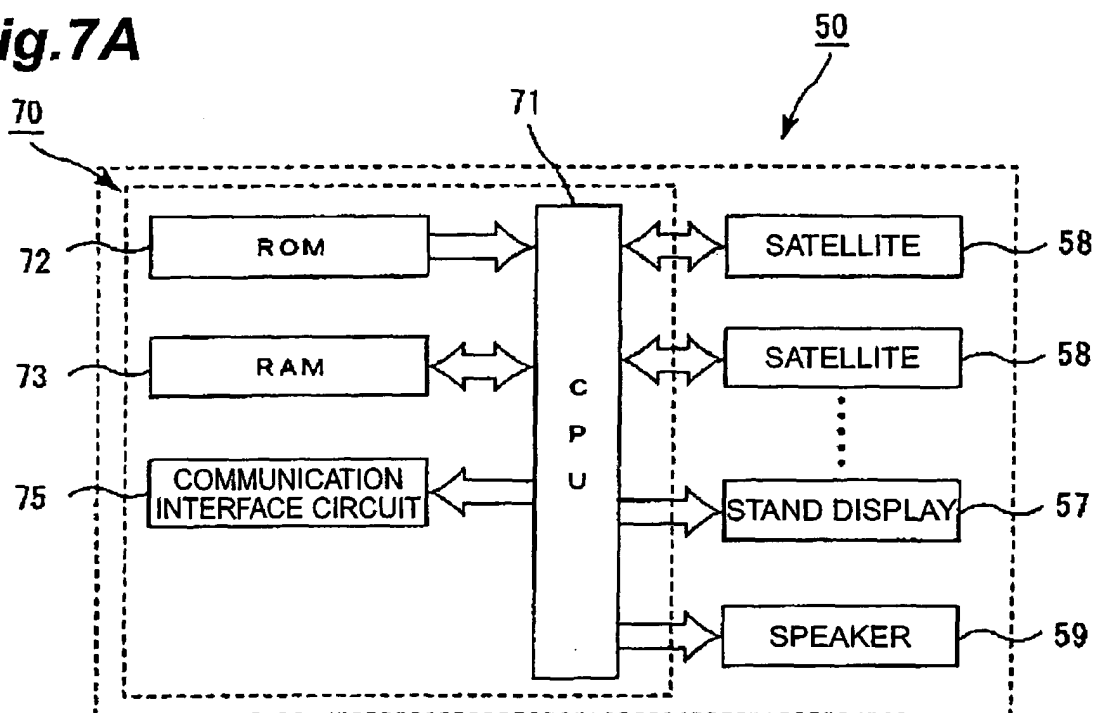
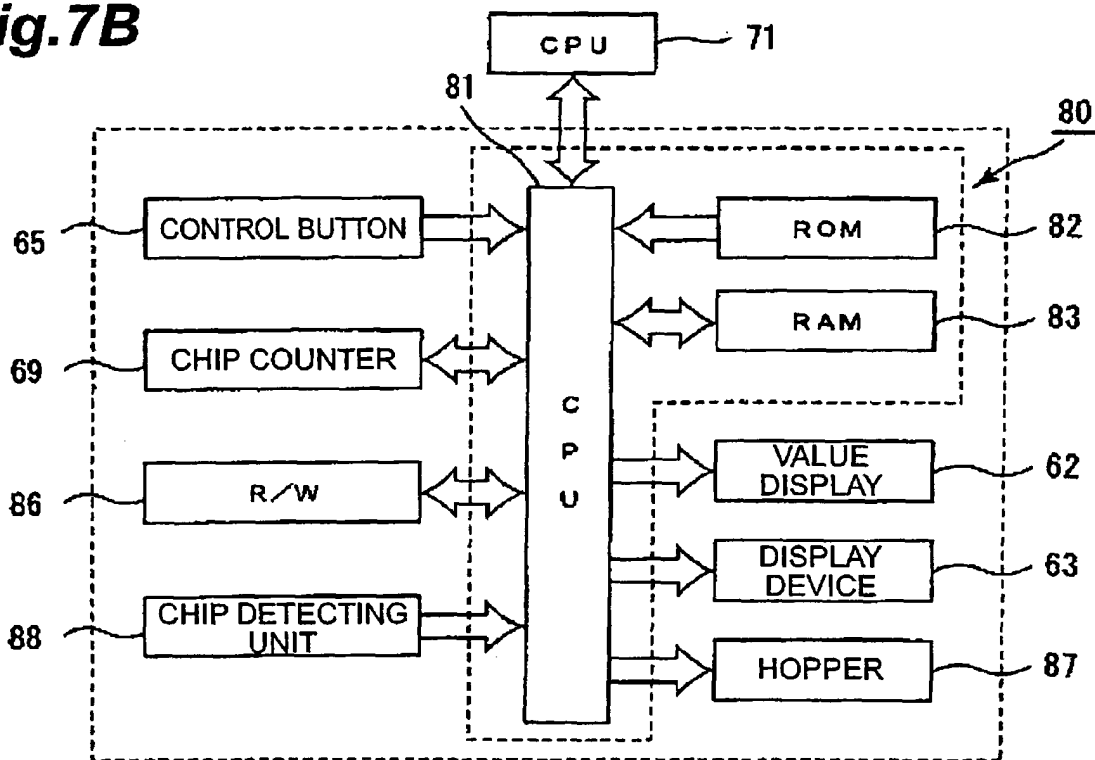
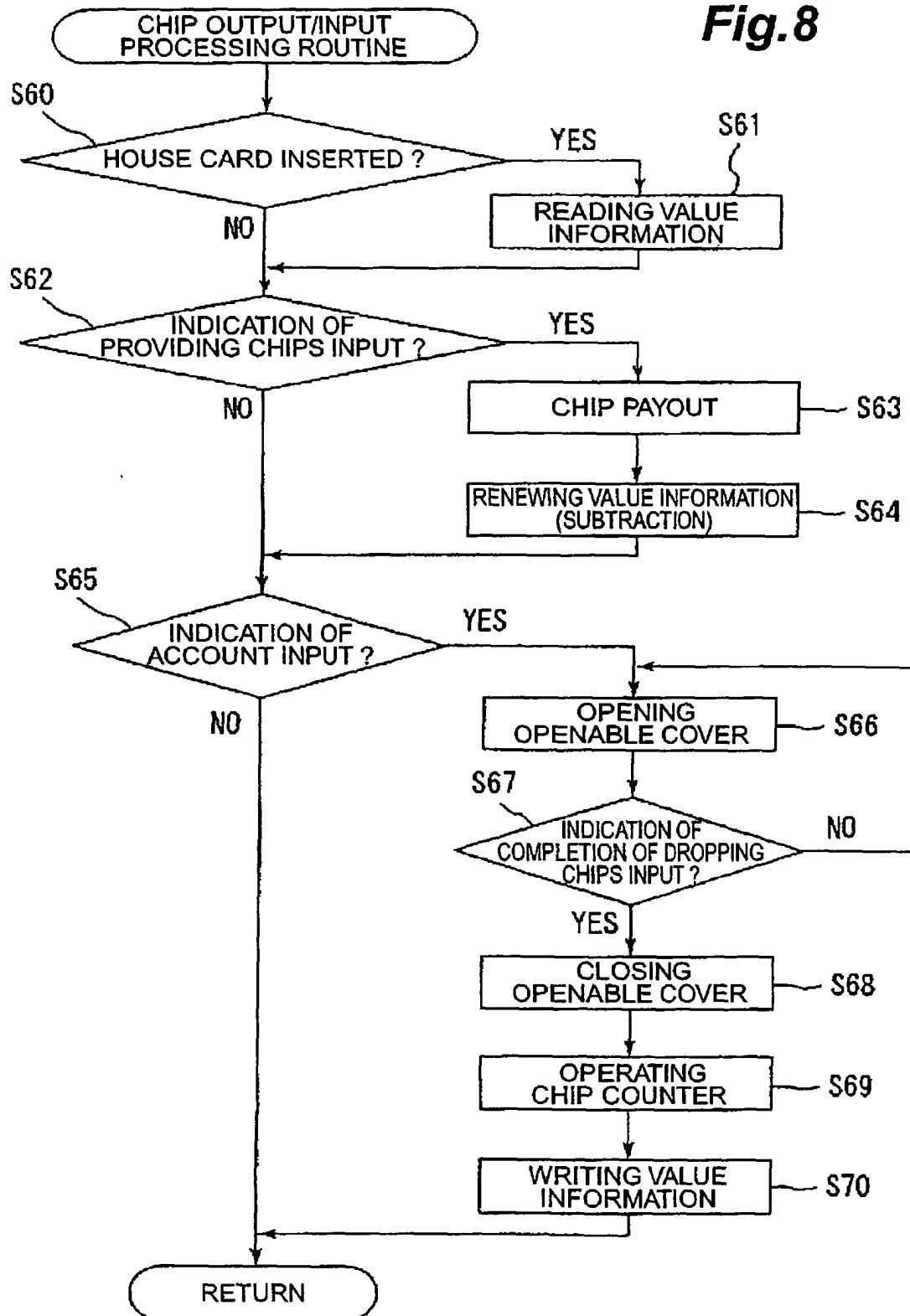
Fig.7A**Fig.7B**

Fig.8

100

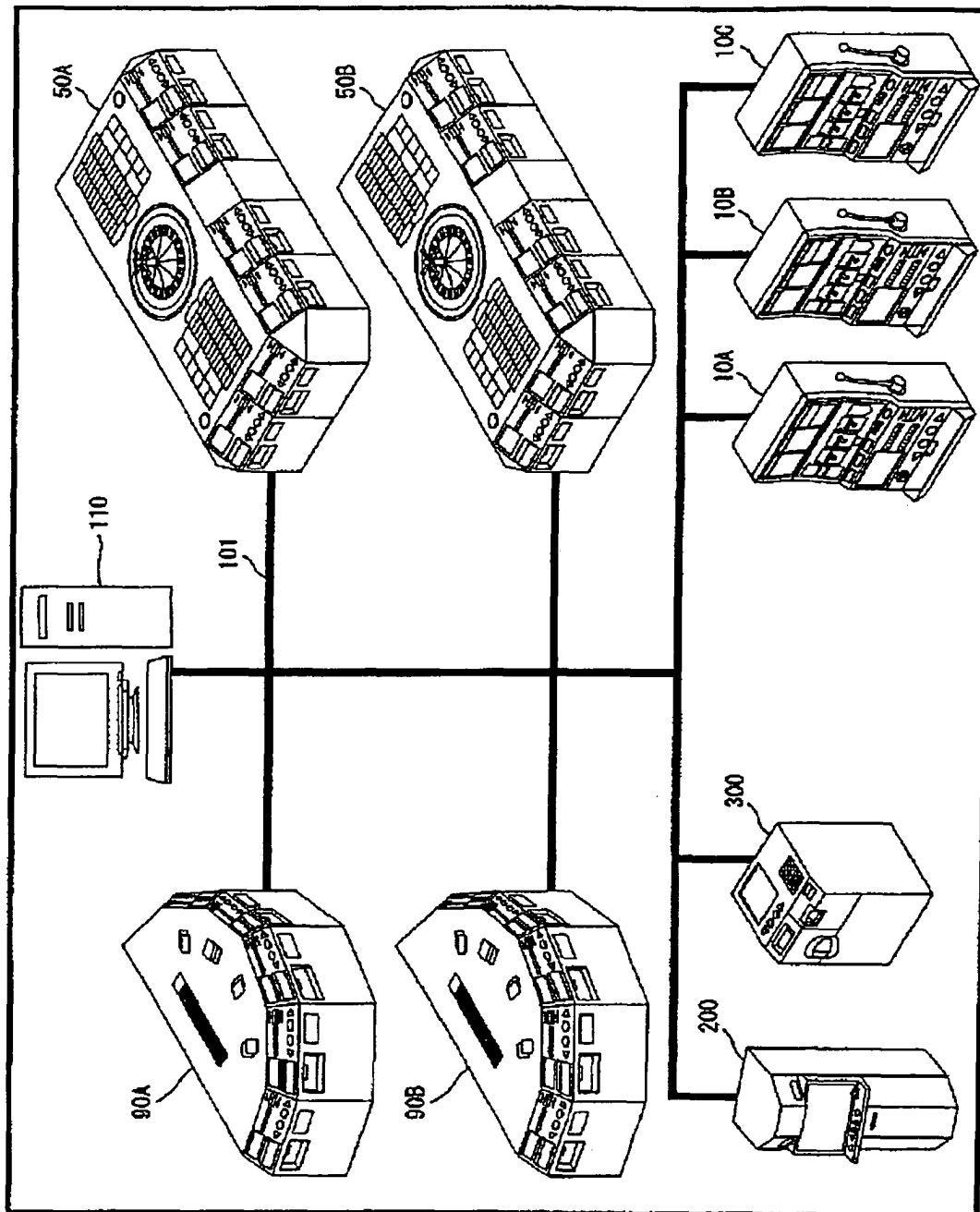


Fig. 9

Fig.10

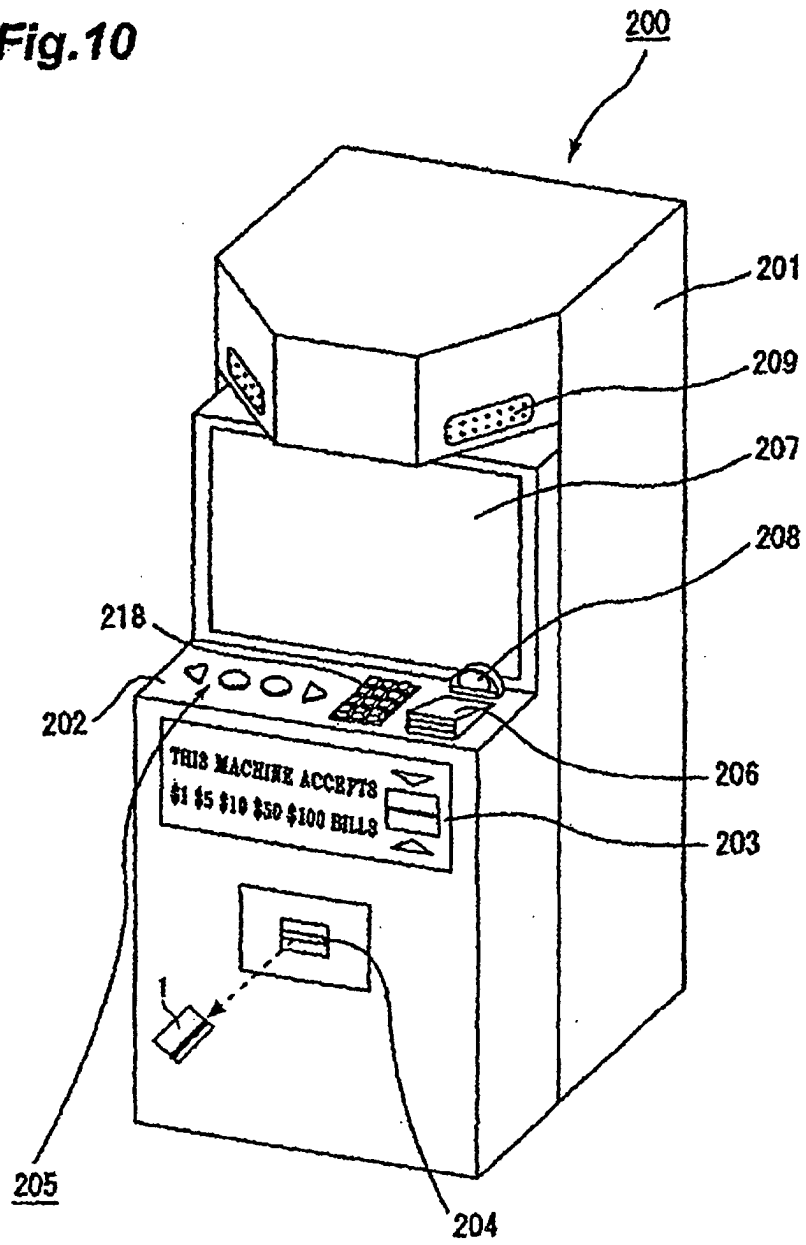


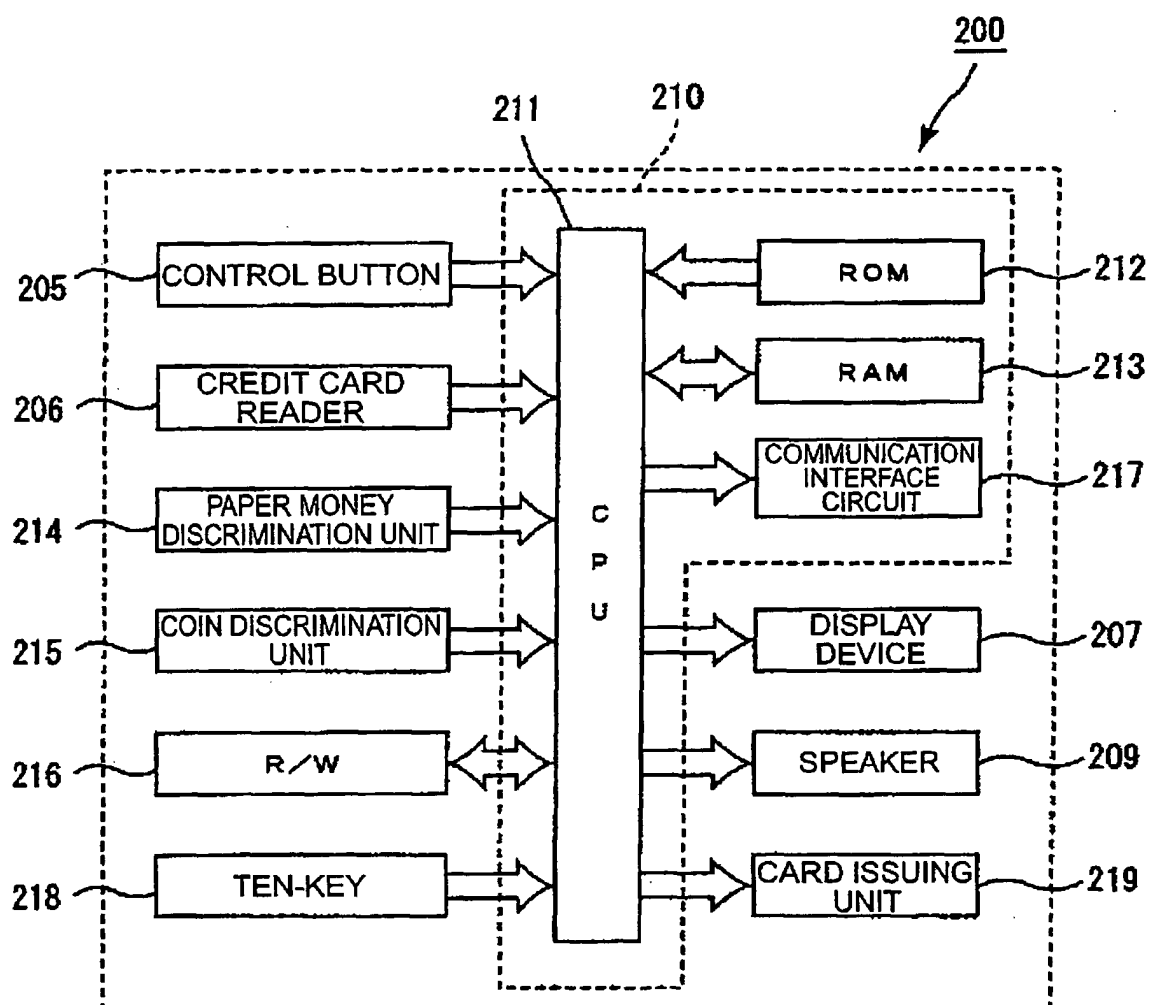
Fig.11

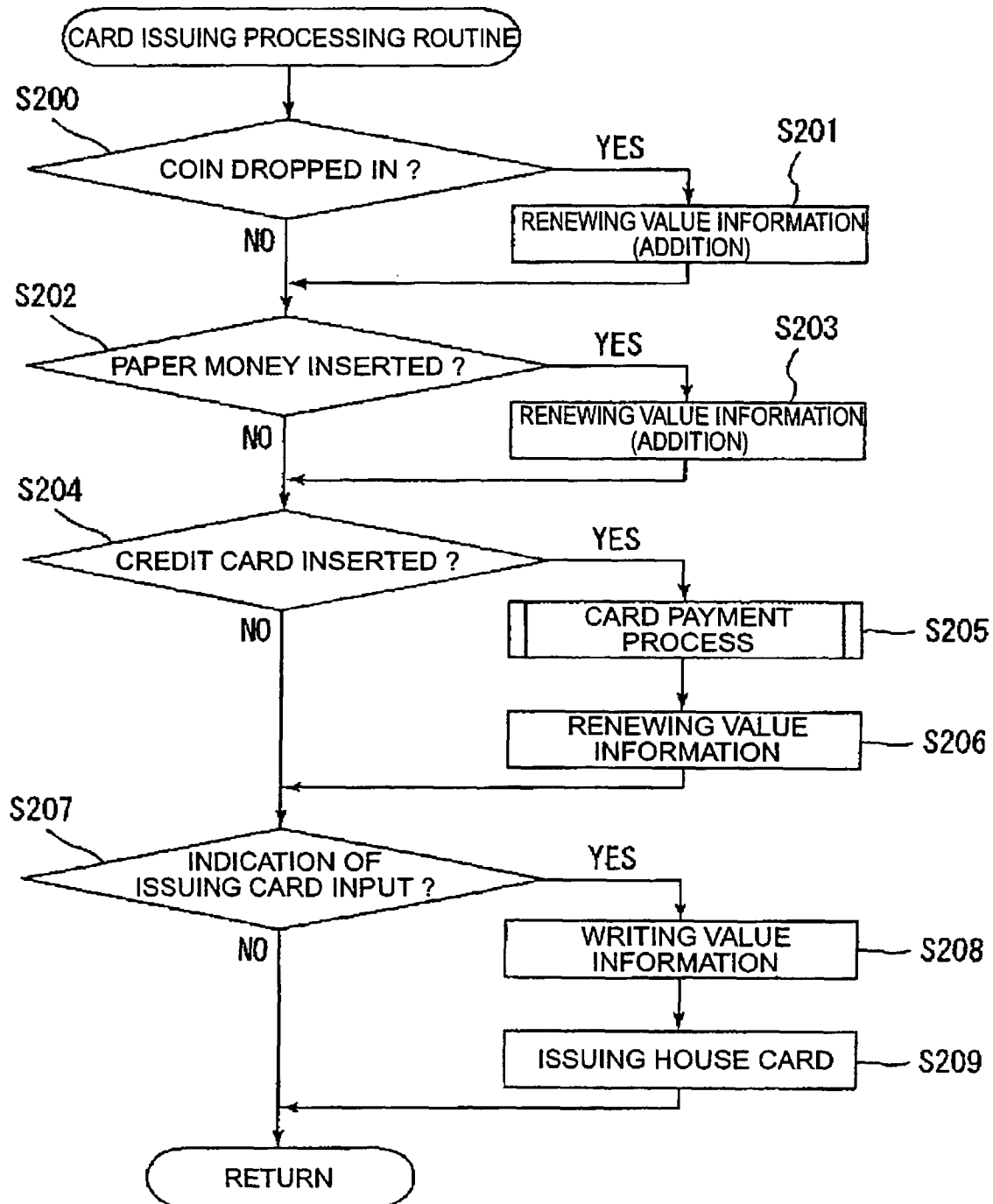
Fig.12

Fig.13

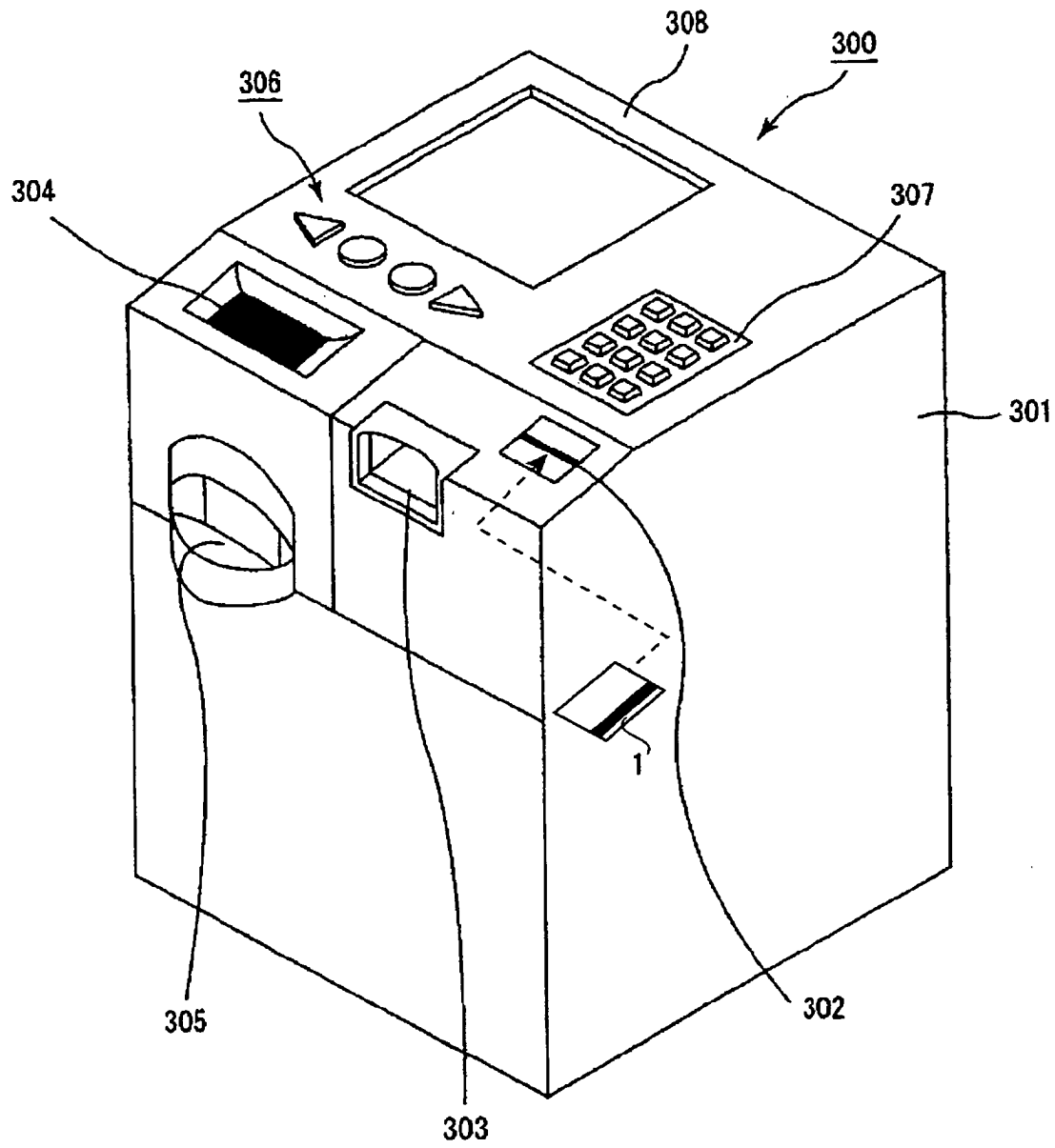


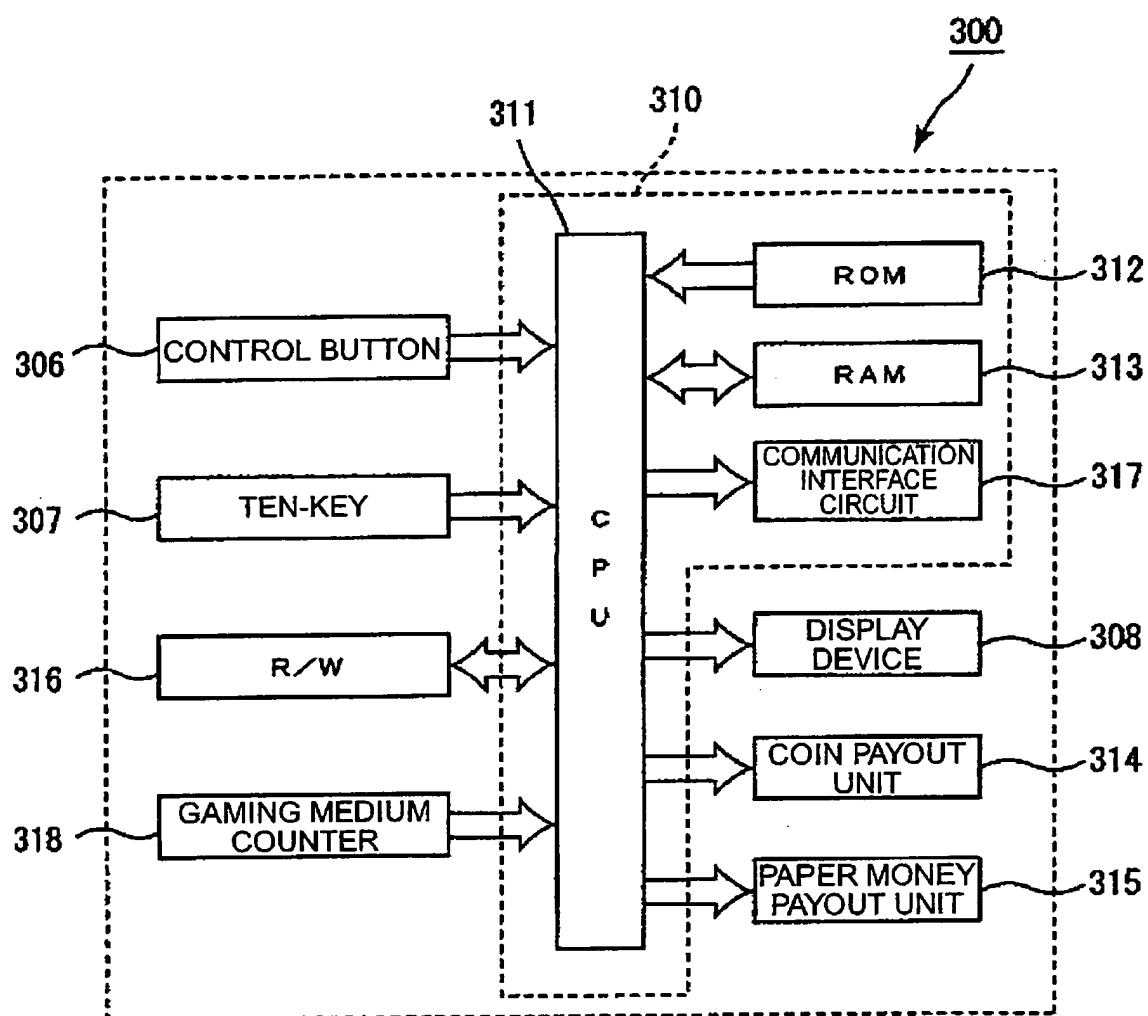
Fig.14

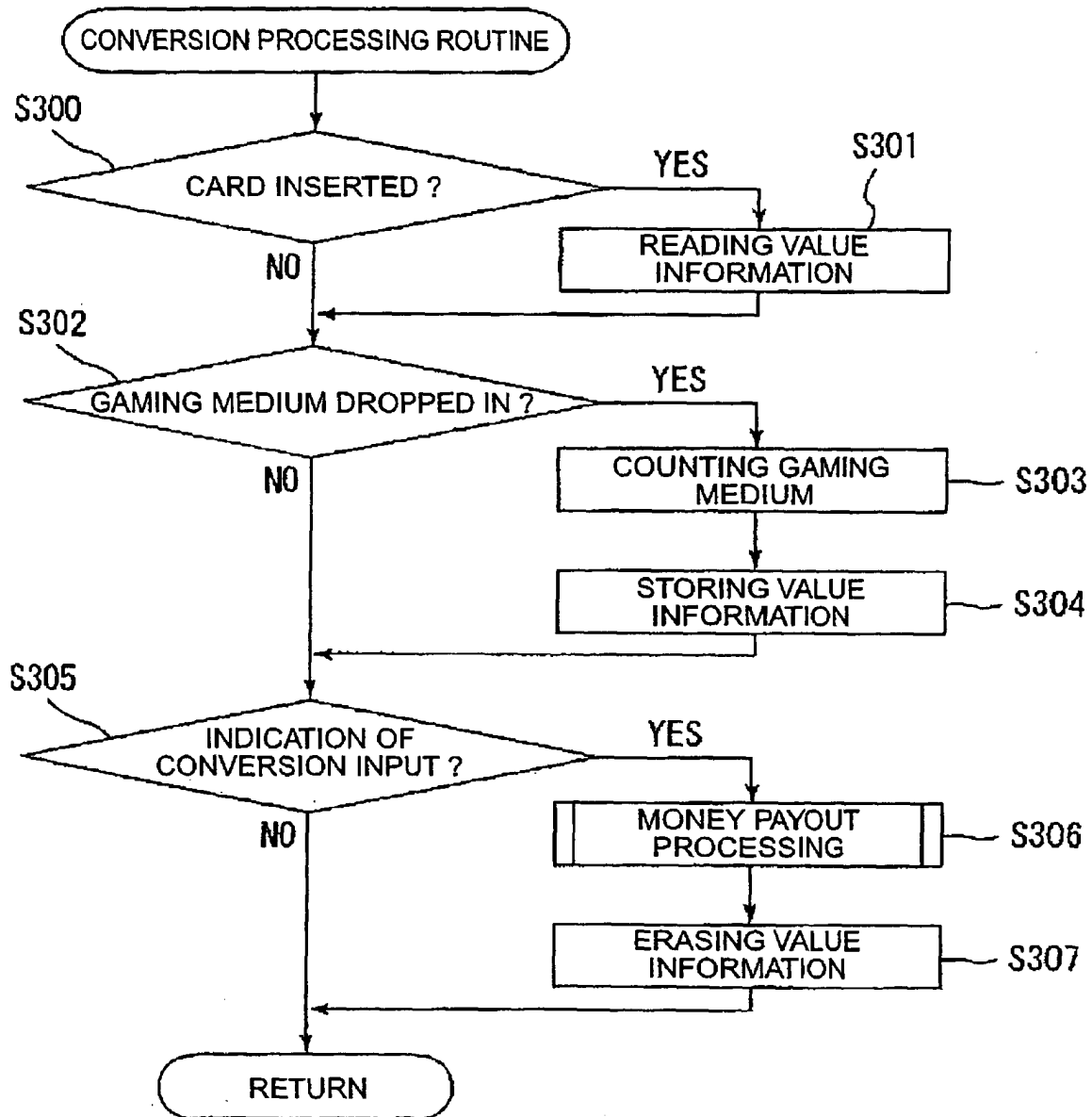
Fig.15

Fig.16

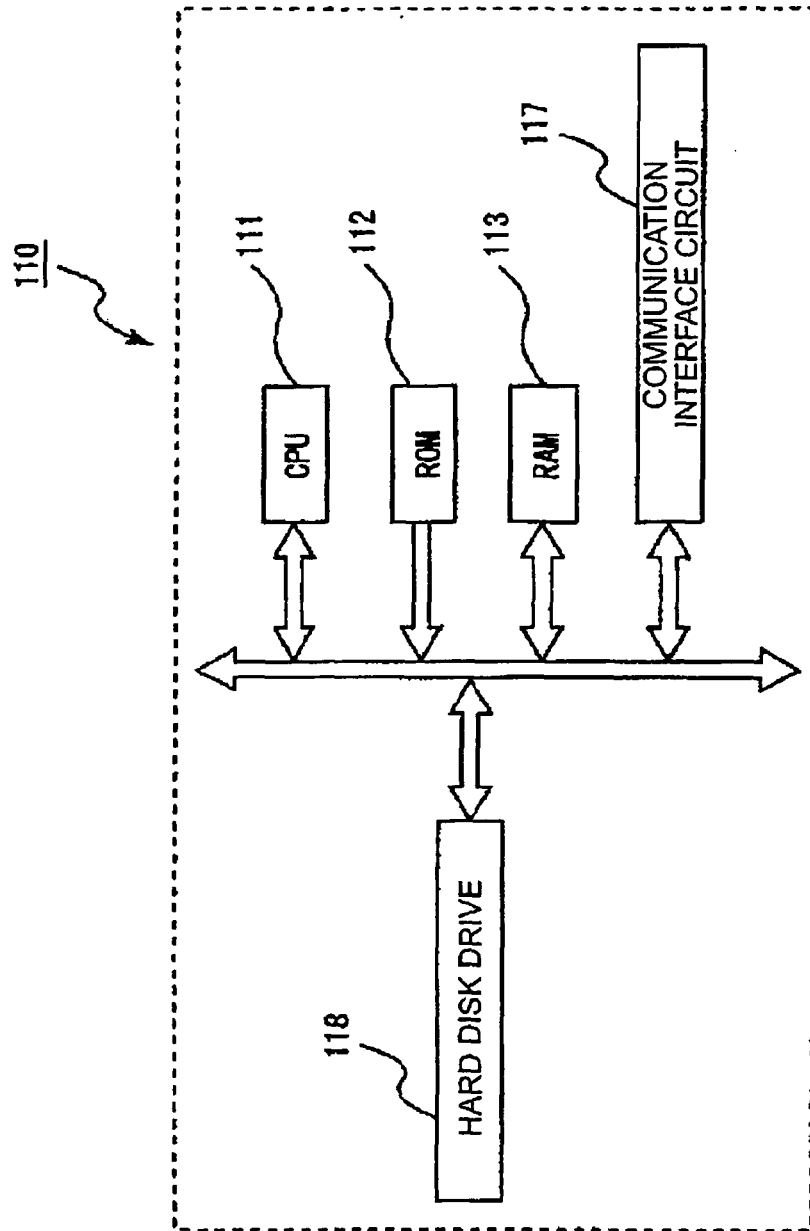


Fig.17