

GAMING MACHINE

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a gaming machine, particularly to a technology in which a medal lending machine reads game value information provided by a gaming machine main body (slot machine main body, pachinko gaming machine main body, etc) and pays out medals based on the information.

Description of the Prior Art

Conventionally, there has been provided a system in which medals are used cyclically when using a pachinko gaming machine in an individual bank (For example, Japanese Unexamined Patent Publication No. H11-76496).

Also, there has been provided a system in which a medal lending machine is provided on a side of a slot machine (For example, Japanese Unexamined Patent Publication No. 2002-177618).

In such a conventional technology, it is considered that, when using a pachinko gaming machine in an individual bank, the slot machine main body described in the Japanese Unexamined Patent Publication No. H11-76496 is removed and the pachinko gaming machine main body is fitted in instead. However, in the slot machine described in this patent publication, a medal runs through inside the slot machine main body, thus the problem is that it is not easy to perform the replacement directly, and that the designing cost increases.

Further, replacement of the pachinko gaming machine main body and the slot machine main body described in the Japanese Unexamined Patent Publication No.

2002-177618 can be considered. However, data transmission is not carried out between the medal lending machine described in this patent publication and the slot machine, thus the problem is that it is difficult to add variety to games.

SUMMARY OF THE INVENTION

An object of the present invention is, therefore, to provide a gaming machine for an individual bank, which can be selectively used by a gaming machine main body on which a game is played with different types of game media.

In order to solve the above problems, a gaming machine according to the present invention comprises: a housing (housing 11) which is provided with an accepting machine (medal lending machine 12a) comprising game media payout means (hopper 40a) for paying out a game medium; and a gaming machine main body (pachinko gaming machine main body 12, slot machine main body 400) on which a game can be played according to a game value of game media or financial media, the gaming machine main body being provided connectably in the accepting machine, fixed to the housing, and equipped with game value providing means (main CPU 201, main CPU 464) for providing a specific game value once a predetermined condition is established, and with game media payout control means (main CPU 201, main CPU 464) for controlling game media payout means of the accepting machine in accordance with the game value provided by the game value providing means; wherein the gaming machine main body, on which a game is played with different types of game media, can be selectively installed.

Further, it is preferred that the game media payout control means controls the game media payout means under the condition that a player performs a predetermined operation.

It is characterized in that the accepting machine accepts the financial media, whereby the game medium is lent out.

It is preferred that the accepting machine be provided on either the right side or left side of the position where the gaming machine main body is installed.

The game media payout means can be a hopper.

It is preferred that the predetermined operation be a push operation of a predetermined button provided in the accepting machine.

Also, it is preferred that credit data which is credited in the accepting machine provided in the housing be converted to quantity data of a game medium used in a game of the gaming machine main body.

In addition, it is preferred that the gaming machine main body in which a game is played by means of different types of game media be a pachinko gaming machine main body and a slot machine main body.

The accepting machine accepts financial medium such as bills, coins, cards, coupons, or the like.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view showing a gaming machine to which a pachinko gaming machine main body is fixed, according to an embodiment of the present invention;

Fig. 2 is a perspective view showing an exterior of a hopper according to an embodiment of the present invention;

Fig. 3 is a perspective view showing an exterior of the foundation which constitutes the hopper of Fig. 2;

Fig. 4 is a perspective view showing a state in which the inside of the main body portion of the hopper of Fig. 2 is disassembled;

Fig. 5 is an explanation drawing showing the state of movement of a medal when the medal is paid out by the hopper;

Fig. 6 is a cross sectional view of a first outlet in normal times;

Fig. 7 is a cross sectional view showing the first outlet when a medal is paid out;

Fig. 8 is a block diagram showing a circuitry of the control system of the gaming machine shown in Fig. 1;

Fig. 9 is a flow chart showing a credit transfer processing according to an embodiment of the present invention;

Fig. 10 is a flow chart showing a launching control circuit processing according to an embodiment of the present invention;

Fig. 11 is a flow chart showing a credit settlement processing according to an embodiment of the present invention;

Fig. 12 is a flow chart showing a hopper control processing according to an embodiment of the present invention;

Fig. 13 is a perspective view showing a gaming machine to which a slot machine main body is fixed, according to an embodiment of the present invention; and

Fig. 14 is a block diagram showing the circuitry of the control system of the gaming machine shown in Fig. 13.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Hereinafter, preferred embodiments for implementing the present invention are described in further detail with reference to the drawings. Here, the same reference numerals are used to designate the same parts throughout the attached figures, thus the

overlapping explanations are omitted. It should be noted that the explanations hereinbelow are preferred embodiments for implementing the present invention, thus the present invention is not to be limited to these embodiments.

In Fig. 1, gaming machine 10 is obtained by integrating a housing 11, which is a housing equipped with a medal lending machine 12a, and a pachinko gaming machine 12 fixed to the housing 11, and thereby constructing an individual bank. The housing 11 supports the gaming machine main body 12 such that a game region 13a of a game board 13 in the gaming machine main body 12 is positioned at the eye level of a player. A mounting base 14 extending out forward to the housing 11 is provided at a position immediately below the gaming machine main body 12 in the housing 11, and a display panel 15 which informs the player of predetermined information is provided at a position immediately above the gaming machine main body.

A predetermined number of game balls are included and accumulated in the gaming machine main body 12, and a game is played by circulating these included game balls.

In the gaming machine main body 12, a frame body to which the above-described game board 13 is attached is fixed rotatably to the housing 11 via a hinge. A glass door 16 is openably and closably provided at the front of the game board 13 such that the game board 13 can be viewed, and a tray unit 17 is also openably and closably fixed on the underside of the glass door 16.

Obstacles such as numbers of game nails and windmills (not shown), a passage gate (not shown), and winning openings 19 such as a start winning opening 19a, a general winning opening 19b, an openable and closable door, an opening for accepting the game balls (a continuing winning opening (not shown), a normal winning opening

(not shown) and the like), and a big winning opening 19c having a swingable tilting board (not shown) are appropriately disposed on the game region 13a which is a region partitioned with a rail 18 in the game board 13 and where the game balls are hit and flows. Further, an OUT opening 20 through which game balls that are not placed the winning opening 19 is disposed in the lower part of the game region 13a. A game ball collecting opening for collecting the game balls flowing down the game region 13a is constituted by the winning openings 19 and the OUT opening 20.

Here, when the game ball is placed on the general winning opening 19b, big winning opening 19c or the like, a predetermined number (for example, "7" when placed on the general winning opening 19b, "14" when placed on the big winning opening 19c, etc) is added to award ball data (described later). It should be noted that the starting value of the award ball data is "0".

The game region 13a is further provided with a special symbol display portion 21 constituting a part of the image display device 54 (Fig. 8). In the special symbol display portion 21, the display mode of the symbols which are a plurality (for example, three) of identification information images is changed, and once the game ball is placed on the start winning opening 19a, display of the symbols is started or stopped. When a combination of the symbols at the stop time becomes a previously set combination of specific symbols, the big winning opening 19c is brought to an open state in accordance with a predetermined mode, and is shifted to a special game state which is advantageous to the player.

The game region 13a is further provided with a normal symbol display portion (not shown) for performing variable display of a normal symbol.

The tray unit 17 as described above is disposed below the game board 13. The tray unit 17 is provided with an accumulating tray 22 where paid out game balls and the game balls that are hit in the game region 13a are temporarily accumulated. It should be noted that although a lower tray 23 is provided below the accumulating tray 22, in the present embodiment of an inclusion type game machine, the game balls are not accumulated in the lower tray 23.

The right side of the tray unit 17 is provided with a handle 24 operated when hitting the game ball into the game region 13a of the game board 13 through the rail 18. A launching device 90 (Fig. 8) operates by turning the handle 24, and the game ball fed into the launching device is launched. It should be noted that the launching device 90 is used to swing a hammer by controlling a launching solenoid (not shown), and strike the game ball at the launching position (at the end of the ball passage leading to the launching device from the accumulating tray 22) with the end of the hammer to send the game ball onto the game board 13.

One end of the gaming machine main body 12 (on the observer's right when shown in the figure) is provided with the medal lending machine 12a which lends the game balls equivalent to the amount of money inserted by the player.

The medal lending machine 12a is provided with a credit number display portion 31, a credit settlement button 32, a credit transfer button 33, a medal number display portion 34, and an infrared transmitting/receiving portion 35.

The credit number display portion 31 is composed of a 3-digit seven-segment LED (light-emitting diode), and displays the number of coins (a number indicated by credit data of a coin. Note that the starting value of credit data of a coin is "0") which are currently credited in the pachinko gaming machine main body 12. Further, the

medal number display portion 34 also is composed of a 3-digit 7-segment LED (light-emitting diode), and displays the number of medal (a number indicated by credit data of a medal. Note that the starting value of credit data of a medal is "0") credited currently in the pachinko gaming machine main body 12.

The credit transfer button 33 is a button for converting the credit data of the credited coins (metal money), medal or the like to game ball data, which is described hereinafter, and the conversion is performed by pushing this button. The conversion is performed, for example, as described below.

When the credit transfer button 33 is pushed, a credit transfer signal is transmitted to a base board 30 of the medal lending machine 12a. The credit transfer signal is then transferred to a main control circuit 200 of the pachinko gaming machine main body 12 by the base board 30. The main CPU 201 of the main control circuit 200 confirms credited data based on the credit transfer signal received from the base board 30. As a result, when coins are credited, processing of converting the credit data of the coins to the game ball data is carried out. For example, if a hundred yen is worth 120 game balls, "1" is deducted from the credit data of the coin, and "120" is added to the game ball data. It should be noted that the added game ball data is stored in a storage region for launchable game ball number of a main RAM 203.

At this time, the number obtained by deducting "1" is displayed on the credit number display portion 31.

On the other hand, in the case where medals are credited as a result of the confirmation, processing of converting the credit data of the medals to the game medal data is carried out. For example, if one medal is worth 7 game balls, "1" is deducted from the credit data of the medal, and "7" is added to the game ball data. It should be

noted that the added game ball data is stored in the storage region for launchable game ball number of the main RAM 203.

At this time, the number obtained by deducting "1" is displayed on the medal number display portion 34.

It should be noted in the present embodiment that the credit data for one 100-yen coin or one medal is converted into the game ball data every time the credit transfer button 33 is pushed once, the invention is not limited to this embodiment and all of the credit data may be converted into the game ball data by pushing the button once.

Further, when pushing the credit transfer button 33, in the case where both coins and medals are credited, in the present embodiment the credit data of the coins is preferentially converted into the game ball data; however, the credit data of the medals may be preferentially converted into the game ball data.

Here, the game ball data is data indicating the number of game balls that can be launched to the game region 13a by operating the handle 24. For example, if the game ball data is "120", 120 game balls can be launched to the game region 13a.

The credit settlement button 32 is a button for carrying out payout of credited coins or credited medals. By pushing this button, the main control circuit 200 carries out the credit settlement processing, whereby the payout is performed. It should be noted that the credited coins are converted to medals and paid out through a medal payout opening 36a.

For example, when there are two 100-yen coins that are credited, since one 100-yen coin is worth 17 medals, the total of 34 medals are paid out from the medal payout opening 36a by pushing the credit settlement button 32.

As to medals, on the other hand, the number of credited medals is directly paid out from the medal payout opening 36a. For example, if there are six credited medals, six medals are paid out from the medal payout opening 36a by pushing the credit settlement button 32.

Once such payout is completed, the credit number display portion 31 and the medal number display portion 34 display that the credit balance is zero.

Further, below the medal number display portion 34 is provided with a medal insertion slot 37 into which a player inserts a medal as a game medium, a medal return lever 37a that the player operates for getting back the medal inserted the medal insertion slot 37, and a medal return slot 37b for getting back a medal when an unprescribed medal is inserted or when the player operates the medal return lever 37a.

Below the medal return slot 37b is provided with a coin insertion slot 38 into which a coin such as a 100-yen coin or the like is inserted, a coin return lever 38a that the player operates for getting back the coin inserted into the coin insertion slot 38, and a coin return slot 38b for getting back a coin when an unprescribed coin is inserted or when the player operates the coin return lever 38a.

In the present embodiment, it should be noted that a 100-yen coin is the prescribed coin, and when a coin other than a 100-yen coin is inserted into the coin insertion slot 38, it is considered unprescribed. However, not only a 100-yen coin but also other types of coins may be set as the prescribed coins.

Between the medal number display portion 34 and the medal insertion slot 37 is provided with the infrared transmitting/receiving portion 35.

In the infrared transmitting/receiving portion 35 game data (the number of acquired medals) can be transmitted after a game is ended. For example, when

accessing a predetermined site after receiving game data by means of a mobile terminal (referred to as "cellular phone" hereinafter) 39, the number of acquired medals of the player is registered in the site. When numbers of players perform the same registration, a national ranking for the number of acquired medals during a predetermined period (for example, one day or one week) is displayed, which takes into account the possibility of increasing an interest in the games.

Coins which are inserted into the coin insertion slot 38 are detected by an inserted-coin sensor (not shown) which is described hereinafter.

When detected by this inserted-coin sensor, a coin insertion detection signal is transmitted to a base board 30. The coin insertion detection signal is then transferred from the base board 30 to the main control circuit 200. The main control circuit 200 which receives the transfer adds "1" to the credit data of the coin and stores the data in the main RAM 203. This is how the coin is credited.

Medals which are inserted into the medal insertion slot 37 are detected by an inserted-medal sensor (not shown) which is described hereinafter.

When detected by this inserted-medal sensor, a medal insertion detection signal is transmitted to the base board 30. The medal insertion detection signal is then transferred from the base board 30 to the main control circuit 200. The main control circuit 200 which receives the transfer adds "1" to the credit data of the medal and stores the data in the main RAM 203. This is how the medal is credited.

Next, a hopper 40a and a coin accumulating box 41 shown by two-dotted broken lines in Fig. 1 will now be described.

The backside of the medal insertion slot 37 or the medal payout opening 36a is equipped with the hopper 40a which accumulates and pays out the medals.

The hopper 40a has a storage container 115 shown in Fig. 2 (referred to as a "bucket" hereinafter) which can accumulate the medals inserted into the medal insertion slot 37. For example, after the medal inserted into the medal insertion slot 37 is detected by the inserted-medal sensor, the medal is accumulated in a bucket 115 of the hopper 40a after passing through a hopper guiding path (not shown).

The front of the hopper 40a is provided with a first outlet 60 constituting the medal outlet portion. The medals accumulated inside the hopper 40a are discharged from the first outlet 60.

Moreover, the backside of the medal payout opening 36a is provided with a second outlet (not shown) which accepts the medals discharged from the first outlet 60. The medals discharged from the first outlet 60 are accepted at the second outlet, pass through a payout path (not shown), are discharged from the medal payout opening 36a, and accumulated in the medal receiving portion 36.

The coin accumulating box 41 for accumulating coins is provided below the hopper 40a. A coin inserted into the coin insertion slot 38 is detected by the inserted-coin sensor, passes through an accumulation path (not shown), and is accumulated in the coin accumulating box 41.

Next, the configuration of the hopper 40a will now be described with reference to Fig. 2 to Fig. 7.

Fig. 2 is a perspective view showing the exterior of the hopper 40a. As shown in Fig. 2, the hopper 40a is constituted by a main body portion 113 having a rotating disk 111 (Fig. 4) and the like, board 110, and a bucket 115 attached to an upper part of the main body portion 113 and accumulating large numbers of medals. Here, the bucket

115 is detachably attached to the main body portion 113 by means of an attaching screw (not shown). Also, a reference numeral 114 in the figures indicates a medal.

Fig. 3 is a perspective view showing the exterior of the board constituting the hopper of Fig. 2. An upper part of the board 110 is provided with a main body portion tray 110a protruding in the form of a cylinder. The main body portion 113 can be fitted to this main body portion tray 110a.

The front of the hopper 40a is provided with the above-described first outlet 60.

Next, the structure of the hopper 40a will now be described using Fig. 4.

Fig. 4 is a perspective view showing a state in which the inside of the main body portion 113 is disassembled.

A rectangular supporting plate 120 composed of a metal plate is attached at a slant to the main body portion 113. A motor 121 equipped with a deceleration mechanism is attached to a lower surface side of the supporting plate 120.

A head 121a is fixed to an output axis of the deceleration mechanism. The head 121a is positioned in an axis hole 120a formed on the supporting plate 120, and the rotating disk 111 is fixed to the end of the head 121a by means of the an attaching screw 122. Further, a hole for discharging wastes 120b, a projection hole 120c of a fixing roller 123 which is described hereinafter, a projection hole 120d of a moving roller 124, a sensor window 120e for a medal sensor, step portion 120f for disposing a blocking member 120g, and the like are formed on a medal receiving face of the supporting plate 120.

A blocking member 120g is turnably attached between walls on the sides of the step portion 120f, with axes provided on both end of the blocking member 120g as supporting points (the axis is fitted rotatably in the axis hole provided in the walls on

the sides of the step portion 120f). One ends of gull springs 120i and 120h with taking the axis as a supporting point are engaged with a back face side of the blocking member 120g to keep the blocking member 120g in a state where it protrudes from the upper face of the supporting plate 120.

Furthermore, a circular opening 125 having a diameter larger than that of a medal is formed on the lower side of the rotating disk 111. Eight of the circular openings 125 are provided in a circumferential direction of the rotating disk 111 at the same pitch. It should be noted that the number of the circular openings 125 may be increased or decreased appropriately in accordance with the size of the rotating disk 111. An upper periphery of the circular opening 125 is formed such that it is gradually opened upward, whereby a medal can easily enter the circular opening 125.

A thrust bearing 135 is provided on the lower side of the rotating disk 111. The thrust bearing 135 is fitted in an attaching groove formed on the back of the rotating disk 111, and is disposed between the rotating disk 111 and the supporting plate 120. The load of the medals inside the bucket 115 are received in the thrust bearing 135, thus the rotating disk 111 can be rotated smoothly at the bottom portion of the bucket 115.

Furthermore, a medal feeding guide plate 130 is fixed to the lower side of the rotating disk 111 via an attaching screw 131. The medal feeding guide plate 130 is formed in the form of a ratchet wheel from metal, and comprises eight guide teeth 132 so as to correspond to the circular openings 125 of the rotating disk 111. The guide teeth 132 are constituted by a medal holding guide face 132a disposed on the inside of the guide teeth 132, and a medal feeding guide face 132b disposed on the outside of same.

The medal holding guide face 132a is formed in the form of a circular arc following the circular opening 125 of the rotating disk 111. The medal feeding guide face 132b is formed in the form of a circular arc where outer side is bulging out such that the medal feeding guide face 132b continues to an internal end portion of the medal holding guide face 132a and contacts with the sharp angle at an outer end portion of the medal holding guide face 132a of an adjacent guide tooth 132. Therefore, a medal going through the circular opening 125 and supported on the supporting plate 120 is held on the medal holding guide face 132a, and fed, by the medal feeding guide face 132b, in a direction in which it is separated from the central axis of the rotating disk 111 in accordance with rotation of the rotating disk 111.

An outside guide plate 140 with a thickness slightly thicker than a medal, and a cover 112 laid thereon are attached to the supporting plate 120. The outside guide plate 140 is configured from a rectangular metal plate, in which a medal guide face 141 in the form of a circular arc having a diameter slightly smaller than the outside diameter of the rotating disk 111 is formed in the central portion of the outside guide plate 140. A fixing roller 123, and notches 143 and 144 for the moving roller 124 are formed at a medal discharge opening 142. Further, a space is formed between the supporting plate 120 covering an upper part of the medal discharge opening 142 and the cover 112, and this space is connected to the first outlet 60.

The medal guide face 141 is divided into a first guide face 141a and a second guide face 141b. The first guide face 141a is formed into a circular arc with a curvature radius slightly smaller than the outside diameter of the rotating disk 111, with the central axis of the rotating disk 111 as the center. The second guide face 141b is formed to have the same curvature radius as the first guide face 141a, and is formed into

a circular arc with a position, which is decentered from the central axis of the rotating disk 111 to the medal discharge opening 142, as the center. The center of the curvature radius of the second guide face 141b is slightly moved to the side of the medal discharge opening 142, thus a medal is brought proximate to the medal discharge opening 142 little by little when discharging medals, and the medals can be discharged smoothly.

Further, a roller attaching bracket 150 is attached to the supporting plate 120. The roller attaching bracket 150 is used to attach the fixing roller 123 and the moving roller 124 such that they protrude from the supporting plate 120 as much as the thickness of one medal. The fixing roller 123 is turnably attached to the roller fixing bracket 150 so as to be positioned in the medal discharge opening 142 such that the periphery of the roller is positioned in an extending direction of the second guide face 141b of the outside guide plate 140. An elastic body 124a made of a rubber is attached to the periphery of the moving roller 124 and is attached turnably to the end of the arm 151. It should be noted that not only a rubber but also a synthetic resin may be used for the elastic body 124a.

The arm 151 is slidably attached to the roller attaching bracket 150, with an attachment axis 150a as the center of rotation, whereby the moving roller 124 is displaced in the cutout 150b between a position where the outlet is opened (position shown by a dashed line in Fig. 5, which is described hereinafter) and a position where the outlet is closed (position shown by a solid line in Fig. 5, which is described hereinafter). A tensile coil spring 152 is attached to the arm 151, and this tensile coil spring 152 presses the moving roller 124 in a position direction of closing the moving

roller 124. In the position where the moving roller 124 is closed, the moving roller 124 is set so as to be positioned in an outer periphery portion of the rotating disk 111.

Medal detection portions 40Sa and 40Sb are attached to a concave portion 112a of the cover 112 in order to detect the medals in the first outlet 60. Further, a sensor window 120b is formed in a position corresponding to the medal detection portions 40Sa and 40Sb in the cover 112 and the supporting plate 120. A reflective photosensor is used for the medal detection portions 40Sa and 40Sb. The medal detection portions 40Sa and 40Sb detect a medal which passes through the medal detection portions 40Sa and 40Sb. Also a light blocking lid 166 for covering the medal detection portions 40Sa and 40Sb is attached to the concave portion 112a of the cover 112. It should be noted that not only the reflective photosensor but also an emitter/detector photosensor may be used for the medal detection portions 40Sa and 40Sb.

Next, an operation of the hopper 40a will now be described. Fig. 5 is a figure showing states of movement of a medal on the medal feeding guide plate 130 and the outside guide plate 140 at the time of medal payout.

The bucket 115 (Fig. 2) contains a large numbers of medals. Once determining to payout a medal, the main CPU 201 of the pachinko gaming machine main body 12 outputs a payout command signal to a hopper drive circuit 41a, and drives the motor 121 via the hopper drive circuit 41a. The motor 121 rotates the rotating disk 111 in the clockwise direction in Fig. 5 (referred to as "positive rotation direction" hereinafter), whereby the medals contained in the bucket 115 are shaken and dropped from the circular opening 125 of the rotating disk 111 onto the supporting plate 120. The medals dropped onto the supporting plate 120 contact with the guide face 141 of the outside guide plate 140 as being pushed to the medal feeding guide plate 130 rotating along

with the rotating disk 111, and is moved towards the medal discharge opening 142 on the surface of the supporting plate 120.

Since the supporting plate 120 is tilted, medals which are sent above the central axis of the rotating disk 111 fall by their own weight, and are held at the medal holding guide face 132a of the medal feeding guide plate 130. Further, medals below the central axis of the rotating disk 111 are being brought into contact with the guide face 141 of the outside guide plate 140 by its own weight. Medals which contact with the second guide face 141b among the guide faces 141 are drawn and sent towards the medal discharge opening 142 by the medal feeding guide face 132b of the medal feeding guide plate 130.

When the medals are positioned in the medal discharge opening 142 by rotation of the rotating disk 111, the medals are brought into contact with the fixing roller 123. In this state, the medals are moved in a direction of discharge by the pressure from the medal feeding guide face 132b of the guide teeth 132 by displacing the moving roller 124 to a position of opening [the outlet]. When the end of the guide teeth 132 is brought to a position where it contacts the medal, the medal is brought to the position where the moving roller 124 is crossed over. Accordingly, the medal is no longer subjected to the pushing action of the guide teeth 132, and is discharged with great force in a medal discharge direction by a biasing force of the tensile coil spring 152 of the moving roller 124.

The medal which is discharged with great force due to return of the closing direction of the moving roller 124 is detected by the medal detection portions 40Sa and 40Sb. A payout completion signal circuit 43 outputs a medal detection signal to the main CPU 201 each time when the medal is detected by the medal detection portions

40Sa and 40Sb. In a similar way, a medal is discharged from the first outlet 60 one after another until the number of medals reaches a predetermined number specified by the main CPU 201.

Here, when the medal detection portions 40Sa and 40Sb are in the state of detecting the medal (when the medal is present in the positions of the medal detection portions 40Sa and 40Sb), it is a state where a medal passage switch (not shown) is ON, and, when in a state of not detecting the medal, the medal passage switch is OFF. It should be noted that the payout completion signal circuit 43 continues to output the medal detection signal if the medal detection portions 40Sa and 40Sb are in the state of detecting the medal.

In addition, it takes for one medal a certain period of time to pass the positions of the medal detection portions 40Sa and 40Sb. Therefore, in the case where a period of time during which the medal detection signal is output (a period of time during which the medal passage detection switch is ON) is shorter than a special period of time (for example, 2.23 ms to 3.35 ms), the main CPU 201 determines that the medal detection signal is a noise, and determines that medal payout is still not performed.

The payout completion signal circuit 43 counts the number of times that the medal is detected by the medal detection portions 40Sa and 40Sb, and, when a counter value (i.e. the number of medals paid out from the hopper 40a) reaches number data specified by the main CPU 201, outputs a payout completion signal for detecting medal payout completion to the main CPU 201. When the main CPU 201 determines that the counter value reaches the number to be payout, the main CPU 201 outputs a payout stop command signal to the hopper drive circuit 41a, and stops drive of the motor 121 by means of the hopper drive circuit 41a. At this time, the drive of the motor 121 is

stopped instantly. It should be noted that drive of the motor 121 is controlled such that the hopper 40a of the present embodiment can payout ten medals in one second (one medal in 0.1 second).

Fig. 6 and Fig. 7 are cross sectional views taken along the line V-V of Fig. 5 (cross sectional views of the medal discharge portion).

Fig. 6 is a cross sectional view showing a state in which a medal is not discharged. The blocking member 120g is biased such that one end thereof is caused to abut on the back of the cover 112a by the spring 120i (120h) shaped as a gull. In a state where the blocking member 120g is biased in this manner and the first outlet 60 is blocked, nothing can be inserted into the hopper 40a through the first outlet 60. Therefore, a conduct of inappropriately acquiring a medal by putting a wire or a piano wire into the hopper 40a from the medal payout opening can be prevented.

Fig. 7 is a cross sectional view showing a state in which a medal is discharged. The medal is discharged with great force in a medal discharge direction, and reaches the position of the blocking member 120g, whereby the blocking member 120g retracts. Accordingly, the medal is discharged from the first outlet 60. Therefore, it is possible to prevent any inappropriate conduct to the hopper 40a can be prevented to realize the payout of medals. It should be noted that the biasing force of the gull spring 120i (120h) is defined as a force such that the blocking member 120g is pushed by a medal and retracts.

Fig. 8 is a block diagram showing a circuitry of the control system of the gaming machine shown in Fig. 1.

The control system of the pachinko gaming machine main body 12 of the gaming machine 10 comprises the main control circuit 200, a sub control circuit 300 connected to the main control circuit 200, and a launching control circuit 70.

This control system has the main control circuit 200 as the main constituent, and is loaded on the inside of the game board 13.

The base board 30 as the control system of the medal lending machine 12a is connected to the main control circuit 200 of the pachinko gaming machine main body 12 via an I/O port 205.

Further, the hopper drive circuit 41a and the payout completion signal circuit 43 are connected to the main CPU 201 of the pachinko gaming machine main body 12 via the I/O port 205.

The main control circuit 200 is mounted with the main CPU (micro processor unit) 201 for carrying out a game operation of the gaming machine 10 in accordance with a previously set program, an initial reset circuit 204 for setting various settings to an initial value in an abnormality, the main RAM 203 for storing various necessary data when the main CPU 201 is operated, and a main ROM 202 which stores a program for the main CPU 201 to process and control the game operation of the gaming machine 10, a big-winning determination table which is referred to when determining a big winning according to random number lotteries, and various probability tables referred to when holding a lottery for an effect.

Here, the main CPU 201 performs big-winning determination processing for performing big-winning determination when the game ball is placed into the start pay opening 19a, thereby generating a start winning, determination processing on effect display of a special symbol and a background picture which are variably displayed on

the special symbol display portion 21, and determination processing on the details displayed on the normal symbol display portion.

Furthermore, the main CPU 201 constitutes big winning opening SOL control means for controlling a big winning opening SOL 72S such that the big winning opening 19c is opened and closed, when a game state is shifted to the special game state.

A passage gate SW 19Sd provided inside the passage gate and detecting a game ball passing through, and a start opening SOL 71S detecting a game ball placed into the start winning opening 19a are connected to the I/O port 205 of the main control circuit 200. A V-count SW 19Sd provided in the continuing winning opening in the big winning opening 19c and detecting the placed game ball, a count SW 19Se provided in the normal winning opening in the big winning opening 19c and detecting the placed game ball, a general winning ball sensor 19S detecting the game ball placed into the general winning opening 19b, and a backup clear SW 74S for deleting the various data stored in the main RAM 203 are also connected. Further, a launched ball sensor 52S detecting a game ball launched from the launching device 90 through an operation of the handle 24, and a returning ball sensor (not shown) detecting a game ball which is launched but does not reach the board face of the game board 13 and returns the rail 18 are connected. Moreover, as actuators, the start opening SOL 71S where a ball accepting opening is enlarged, the big winning opening SOL 72S for opening and closing the big winning opening 19c, tilting-board SOL 73S driving the tilting board inside the big winning opening 19c, and the like are connected to the I/O port 205.

When each of the above sensors detects the game ball, a detection signal thus produced is input to the main CPU 201 of the main control circuit 200, and the main CPU 201 performs control of drive of each of the above actuators 71S, 72S and 73S in

response to the input detection signal. Further, a control command is transmitted from a command output port 206 of the main control circuit 200 to the sub control circuit 300 and the launching control circuit 70 respectively, and operations of the image display device 54, the speaker 25, the lamp/LED display device 39a, and the launching device 90 are controlled by the sub control circuit 300 and launching control circuit 70.

It should be noted that the main CPU 201 comprises launched game ball counting means which deducts "1" from the game ball data stored in the storage region for launchable game ball number every time the above-described launched ball sensor 52S detects one game ball, and at the same time adds "1" to the game ball data every time the above-described returning ball sensor detects one game ball.

For example, in the case where the game ball data is "140", when the launched ball sensor 52S detects 20 game balls and the returning ball sensor detects 4 game balls, the game ball data becomes "124".

The main CPU 201 comprises launching control means for transmitting a strike start signal to the launching control circuit 70 when the game ball data becomes "1" or more from "0".

Further, the launching control means has a function which monitors remains of the game ball data stored in the storage region for launchable game ball number, and, when the game ball data becomes "0", stops the transmission of the strike start signal to the launching control circuit 70.

The sub control circuit 300 is mounted with a sub CPU 301, a work RAM 303, and a program ROM 302. The sub CPU 301 interprets a control command received from the main control circuit 200 via a command input port 304, and performs control of an image control circuit 305, a voice control circuit 306, a lamp control circuit 307

and the like in accordance with a result of the interpretation. A control program with which the sub CPU 301 processes and controls the image control circuit 305 on the basis of an image control command signal outputted from the main control circuit 200, a control program for processing and controlling the voice control circuit 306 on the basis of a voice generation command signal outputted from the main control circuit 200, a control program for processing the controlling the lamp control circuit 307 on the basis of a lamp control command signal outputted from the main control circuit 200, and other programs are stored in the program ROM 302. The work RAM 303 becomes temporary storage means when the sub CPU 301 performs processing and control in accordance with the above-described control programs.

The image display device 54 is connected to the image control circuit 305. The image control circuit 305 performs image display control processing, such as variably displaying a special symbol and background picture corresponding to a result of the big-winning determination, with respect to the image display device 54 on the basis of control of the sub CPU 301. Further, the image control circuit 305 and the image display device 54 constitute notification means for notifying whether or not a reach effect is generated in a game, types of the reach effect to be generated, and a degree of reliability in generating a big winning, in accordance with the mode of effect display when variably displaying the special symbol.

The speaker 25 is connected to the voice control circuit 306. The voice control circuit 306 generates a voice signal on the basis of control of the sub CPU 301. The speaker 25 generates a sound on the basis of this inputted voice signal.

The lamp/LED display device 39a is connected to the lamp control circuit 307. The ramp control circuit 307 generates a signal on the basis of control of the sub CPU

301. The lamp/LED display device 39a performs lighting display and the like on the basis of this inputted signal.

The launching device 90 is connected to the launching control circuit 70. The launching control circuit 70 performs control of drive of the launching solenoid in response to a turning operation of the handle 24 during the time that a game ball strike flag (described hereinafter) is set to "1". Accordingly, the game ball is launched from the launching device 90.

It should be noted that an initial value of the game ball strike flag is "0". When the game ball data becomes "1" or more, the game ball strike flag is set to "1".

Further, the handle 24 is provided with a stop button (not shown) for stopping launching the game ball.

The base board 30 of the medal lending machine 12a is mounted with the infrared transmitting/receiving portion 35.

Here, the infrared transmitting/receiving portion 35 receives a signal or the like from a communicable terminal of a cellular phone 39 or the like, and transmits data and the like to the terminal.

The credit number display portion 31, medal number display portion 34, credit transfer button 33, credit settlement button 32, a change-settings button 50 (Fig. 8) and the like are connected to the base board 30.

Also, the base board 30 is connected to the main control circuit 200 of the pachinko gaming machine main body 12, and performs operations, such as transmitting signals received from the credit transfer button 33, credit settlement button 32, change-settings button 50 and the like to the main control circuit 200, controlling display of the

credit number display portion 31 and medal number display portion 34 on the basis of a control command received from the main control circuit 200, and other operations.

The change-settings button 50 is a button capable of changing a big-winning probability (a probability of determining that a big winning is made at the time of big-winning determination. For example, the probability can be changed between 1/200 and 1/600.), the rate of probability change (for example, the probability can be changed between 1/1.5 and 1/5), the rate of continuation of probability change (for example, the probability can be changed between 1/1.5 to 1/5), and the like. For example, when powering up the gaming machine 10 while pushing the change-settings button 50, the gaming machine 10 enters a mode where the settings can be changed. At this time, the setting for changing the above-described probabilities can be performed by performing various operations.

The hopper portion 40 of the medal lending machine 12a is mounted with the hopper 40a, and the medal detection portions 40Sa and 40Sb. Further, the hopper 40a is connected to the hopper drive circuit 41a of the pachinko gaming machine main body 12, and each of the medal detection portions 40Sa and 40Sb is connected to the payout completion signal circuit 43 of the pachinko gaming machine main body 12.

It should be noted that when generating a medal payout signal, the main CPU 201 of the pachinko gaming machine main body 12 causes the hopper 40a to pay out the number of medals indicated by the medal payout signal by controlling drive of the hopper 40a through the hopper drive circuit 41a and the like.

Next, an operation of the present embodiment will now be described. In the gaming machine 10, when a player inserts a coin such as a 100-yen coin or the like into the coin insertion slot 38, the coin is detected by the inserted-coin sensor, and a coin

insertion detection signal is transmitted to a base board 30. The coin insertion detection signal is then transferred from the base board 30 to the main control circuit 200. The main control circuit 200 which receives the transfer adds "1" to the credit data of the coin and stores the data in the main RAM 203.

Then, the main CPU 201 of the main control circuit 200 transmits a control command to the base board 30, and performs control so as to cause the credit number display portion 31 to display the number indicated by the credit data of the coin at the present moment.

On the other hand, when the player inserts a medal into the medal insertion slot 37, the medal is detected by an inserted-medal sensor, and a medal insertion detection signal is transmitted to the base board 30. The medal insertion detection signal is then transferred from the base board 30 to the main control circuit 200. The main control circuit 200 which receives the transfer adds "1" to the credit data of the medal and stores the data in the main RAM 203.

Then, the main CPU 201 of the main control circuit 200 transmits a control command to the base board 30, and performs control so as to cause the medal number display portion 34 to display the number indicated by the credit data of the medal at the present moment.

Specifically, the main CPU 201 of the main control circuit 200, which is the game value providing means, displays on the medal number display portion 34 a specific game value (for example, the number indicated by the credit data of the medal, as described above) which is provided once a predetermined condition (where a medal is inserted or a big winning is made, for example) is established.

Further, the main CPU 201 of the main control circuit 200 performs credit transfer processing and launching control circuit processing which are described hereinafter (in the launching control processing, processing regarding whether or not a game can be played is performed), whereby a game in accordance with the above-described game value or a game value of a coin can be played. Furthermore, in credit settlement processing performed by the main CPU 201, which is described hereinafter, preparation of a medal payout and a post processing are performed, and in hopper control processing performed by the main CPU 201, which is described hereinafter, a medal is paid out from the hopper 40a of the medal lending machine 12a.

An operation which is performed when a player pushes the credit transfer button 33 when the abovementioned credit data (credit data of the coin or medal) is "1" or more is now explained with reference to the drawings. Fig. 9 is a flow chart showing a credit transfer processing, which is executed in a predetermined cycle (for example, 2 msec).

In Step 101, the main CPU 201 of the main control circuit 200 confirms whether or not a credit transfer signal is received from the credit transfer button 33 via the base board 30. As a result of the confirmation, if the credit transfer signal is received, the process is shifted to Step 102, and if not received, the credit transfer processing is ended.

In Step 102, the main CPU 201 of the main control circuit 200 confirms whether or not the credit data of the coin, which is stored in the main RAM 203, is "1" or more. As a result of the confirmation, if the credit data of the coin is "1" or more, the process is shifted to Step 103, and if the credit data of the coin is not "1" or more, the process is shifted to Step 105.

In Step 103, the CPU 201 of the main control circuit 200 deducts "1" from the credit data of the coin, which is stored in the main RAM 203, and adds "120" to the game ball data. The added game ball data is stored in a storage region for launchable game ball number of a main RAM 203.

It should be noted that when the game ball data becomes "1" or more from "0" in Step 103, the main CPU 201 of the main control circuit 200 transmits a strike start signal to the launching control circuit 70.

In Step 104, the main CPU 201 of the main control circuit 200 displays the number indicated by the credit data of the coin, which is stored in the main RAM 203, on the credit number display portion 31 through the base board 30.

In Step 105, the main CPU 201 of the main control circuit 200 confirms whether or not the credit data of the medal, which is stored in the main RAM 203, is "1" or more. As a result of the confirmation, if the credit data of the medal is "1" or more, the process is shifted to Step 106, and if the credit data of the medal is not "1" or more, the credit transfer processing is ended.

In Step 106, the CPU 201 of the main control circuit 200 deducts "1" from the credit data of the medal, which is stored in the main RAM 203, and adds "7" to the game ball data. The added game ball data is stored in a storage region for launchable game ball number of a main RAM 203.

It should be noted that when the game ball data becomes "1" or more from "0" in Step 106, the main CPU 201 of the main control circuit 200 transmits a strike start signal to the launching control circuit 70.

In Step 107, the main CPU 201 of the main control circuit 200 displays the number indicated by the credit data of the medal, which is stored in the main RAM 203, on the credit number display portion 34 through the base board 30.

Next, an operation of the launching control circuit 70 is now described with reference to the drawings. Fig. 10 is a flow chart showing a launching control circuit processing, which is executed in a predetermined cycle (for example, 2 msec).

In Step 201, the launching control circuit 70 confirms whether or not "0" is set for a game ball strike flag. As a result of the confirmation, if "0" is set for the game ball strike flag, the process is shifted to Step 202, and if "0" is not set for the game ball strike flag, the process is shifted to Step 205.

In Step 202, the launching control circuit 70 confirms whether or not a strike start signal is received from the main CPU 201. As a result of the confirmation, if the strike start signal is received from the main CPU 201, the process is shifted to Step 203, and if the strike start signal is not received from the main CPU 201, the launching control circuit processing is ended.

In Step 203, the launching control circuit 70 executes a game ball strike start processing. Specifically, drive of the launching solenoid is made possible (for example, providing electricity to the launching solenoid, and the like), whereby the game ball can be launched from the launching device 90 in response to a turning operation of the handle 24.

In Step 204, the launching control circuit 70 sets "1" for the game ball strike flag.

In Step 205, the launching control circuit 70 confirms whether or not the strike start signal is received from the main CPU 201. As a result of the confirmation, if the

strike start signal is not received, the process is shifted to Step 206, and if the strike start signal is transmitted, the launching control circuit processing is ended.

In Step 206, the launching control circuit 70 executes end processing of the game ball strike. Specifically, drive of the launching solenoid is made impossible (for example, stopping provision of electricity to the launching solenoid, and the like), to stop the launching device 90 launching the game ball. Consequently, launching of the game ball from the launching device 90 is not carried out even when a turning operation of the handle 24 is performed.

In Step 207, the launching control circuit 70 set "0" for the game ball strike flag.

As above, in the present embodiment, the game ball for which the launching force is adjusted is launched into the game region 13a by operating the handle 24 only when "1" is set for the game ball strike flag. Then, when the game ball launched into the game region 13a is placed in the general winning opening 19b or the like, a predetermined number (for example, "7") is added to award ball data by the main CPU 201. The added award ball data is converted into the credit data of the medal by the main CPU 201 (for example, if the award ball data "7" is converted into the credit data "1" of the medal, the award ball data "7" becomes "0", and "1" is added to the credit data of the medal. At this time, a number indicated by the credit data of the medal after the addition is displayed on the medal number display portion 34), and is stored in the main RAM 203.

Further, subject to that the game ball passes through the passage gate, the normal symbol display portion starts variable display of a normal symbol. A stop display mode of the normal symbol in the normal symbol display portion is determined according to a

lottery using random numbers. Then the variable display of the normal symbol is stopped based on this determination.

Here, if the stop display mode of the normal symbol in the normal symbol display portion is a "winning", a normal electric attraction member (not shown) provided in the start winning opening 19a is switched to a state for a predetermined period of time (0.3 seconds, for example) in which the game ball can be accepted easily.

Further, subject to that the game ball is placed in the start winning opening 19a, the image display device 54 starts variable display of a special symbol. A stop display mode of the special symbol in the image display device 54 is determined according to a lottery using random numbers. Then the variable display of the special symbol is stopped based on this determination.

Here, if the stop display mode of the special symbol in the image display device 54 is a "big winning", the state is shifted to a special game state, the big winning opening SOL 72S opens the door of the big winning opening 19c until a predetermined period of time elapses (for example, 30 seconds), or until a predetermined number of game balls (for example, 9) are accepted. Furthermore, if the game ball placed in the big winning opening 19c is also placed in the continuing winning opening during the time that the door is opened, the door of the big winning opening 19c is opened again. This opening is repeated until a predetermined maximum number (for example, 15 times) is reached.

It should be noted that if the game ball is placed in any of the winning openings in the big winning opening 19c (normal winning opening or continuing winning opening), the main CPU 201 adds a predetermined number (for example, "14") to the award ball data. The added award ball data is converted into the credit data of the

medal by the main CPU 201 (for example, if the award ball data "7" is converted into the credit data "1" of the medal, the award ball data "14" becomes "0", and "2" is added to the credit data of the medal. At this time, a number indicated by the credit data of the medal after the addition is displayed on the medal number display portion 34), and is stored in the main RAM 203.

Also, the game ball placed in any of the winning openings 19 and the game ball flowing into the OUT opening 20 are collected in the game ball collecting opening which runs in the game region 13a, and are accumulated in the accumulating tray 22.

In the case where the credit data of the medal stored in the main RAM 203 is increased due to the winning of the game ball and the like in the course of continuing the game, or when wishing to end the game, or the like, the player can receive a payout of the medal by pushing the credit settlement button 32.

Operation performed when the credit settlement button 32 is pushed by the player will now be described with reference to the drawing. Fig. 11 is a flow chart showing a credit settlement processing which is executed in a predetermined cycle (for example, 2 msec).

In Step 301, the main CPU 201 of the main control circuit 200 confirms whether or not a credit settlement signal is received from the credit settlement button 32 via the base board 30. As a result of the confirmation, if the credit settlement signal is received, the process is shifted to Step 302, and if not received, the credit settlement processing is ended.

In Step 302, the main CPU 201 of the main control circuit 200 confirms whether or not the credit data of the coin, which is stored in the main RAM 203, is "1" or more. As a result of the confirmation, if the credit data of the coin is "1" or more, the process

is shifted to Step 303, and if the credit data of the coin is not "1" or more, the process is shifted to Step 305.

In Step 303, the main CPU 201 of the main control circuit 200 performs a conversion processing for converting the coin to medal. Specifically, the whole credit data of the coin, which is stored in the main RAM 203, is converted into medal credit data. In the present embodiment, the credit data of the coin "1" is converted into credit data of medal "17". Therefore, for example, if the credit data of the coin is "2", the credit data of the coin becomes "0", and "34" is added to the credit data of the medal.

In Step 304, the main CPU 201 of the main control circuit 200 performs a display processing for displaying the number of credits of the coins. Specifically, the number indicated by the credit data of the coin which is stored in the main RAM 203, is displayed in the credit number display portion 31 through the base board 30.

In Step 305, the main CPU 201 of the main control circuit 200 confirms whether or not the credit data of the medal, which is stored in the main RAM 203, is "1" or more. As a result of the confirmation, if the credit data of the medal is "1" or more, the process is shifted to Step 306, and if the credit data of the medal is not "1" or more, the credit settlement processing is ended.

In Step 306, the main CPU 201 of the main control circuit 200 generates a medal payout signal which denotes that the number of medals equivalent to the number of credit data items of the medals stored in the main RAM 203 are paid out.

In Step 307, a hopper control processing is performed. A medal payout is carried out by this hopper control processing. Once the medal payout is finished, a medal payout completion signal is transmitted from the payout completion signal circuit

43 to the main CPU 201 of the main control circuit 200. Concrete descriptions for the hopper control processing are provided hereinafter.

In Step 308, a medal payout end processing is performed. Specifically, the main CPU 201 of the main control circuit 200 which receives the medal payout completion signal deducts the number of medals paid out in the hopper control processing of Step 307 from the credit data of the medal which is stored in the main RAM 203.

In Step 309, the main CPU 201 of the main control circuit 200 performs a display processing for displaying the number of credits of the medals. Specifically, the number indicated by the credit data of the medal, which is stored in the main RAM 203, is displayed in the medal number display portion 34 through the base board 30.

Next, the hopper control processing is explained with reference to the drawing. Fig. 12 is a flow chart showing a hopper control processing which is executed in a predetermined cycle (for example, 2 msec).

In Step 401, the main CPU 201 of the main control circuit 200 confirms whether or not a medal payout signal is generated. As a result of the confirmation, if the medal payout signal is generated, the process is shifted to Step 402, and if not generated, the hopper control processing is ended.

In Step 402, the main CPU 201 of the main control circuit 200 performs a hopper drive processing. Specifically, a payout command signal is outputted to the hopper drive circuit 41a to drive the motor 121 through the hopper drive circuit 41a, whereby drive of the hopper 40a is controlled, and the number of medals indicated by the abovementioned medal payout signal are paid out. It should be noted that the medals are paid out through the medal payout opening 36a.

In Step 403, the main CPU 201 of the main control circuit 200 confirms whether or not a payout completion signal is detected from the payout completion signal circuit 43. As a result of the confirmation, if the payout completion signal is detected, the process is shifted to Step 404, and if not detected, the hopper drive processing of the Step 402 is continued.

In Step 404, the main CPU 201 of the main control circuit 200 performs a hopper stop processing. Specifically, a payout stop command signal is outputted to the hopper drive circuit 41a to stop the drive of the motor 121 through the hopper drive circuit 41a, whereby the medal payout of the hopper 40a is ended.

After the above-described processing is ended, the payout completion signal circuit 43 transmits the medal payout completion signal to the main CPU 201 of the main control circuit 200.

In other words, the medal lending machine 12a comprises the medal payout means (hopper 40a) for paying out medals corresponding to the game value (for example, the number indicated by the credit data of the medal) provided by the gaming machine main body by performing the hopper control processing through the control of the main CPU 201 of the gaming machine main body.

Games are played as above in this embodiment. It should be noted that the player who receives the medal payout from the medal payout opening 36a can insert this paid out medal into the medal insertion slot 37 to start the above-described game again. Further, in the case where a certain number of above medals are accumulated, the medals may be presented to a counter or the like to exchange for a premium equivalent to the number of the presented medals, or to ask to keep them until the next game is played.

Moreover, in the present embodiment, although the credit data of the coin or the credit data of the medal are stored in the main CPU 201 of the main control circuit 200, not only in the main CPU 201, they may be stored in the storage device equipped in the base board 30. Regarding the processing performed on the above credit data and the credit data of medals by the main CPU 201, a CPU equipped in the base board 30 may perform this processing, instead of the main CPU 201.

Also in the present embodiment, although the credit data of the coin and the credit data of the medal are paid out after being converted into a medal when the credit settlement button 32 is pushed in the credit settlement processing, the game ball data may be converted into a medal and paid out (for example, one medal is paid out for the game ball data "7").

Furthermore, operations of the launching control circuit processing performed by the launching control circuit 70 in the present embodiment may be performed by the main control circuit 200.

An example is explained above in which the pachinko gaming machine main body 12 where a game ball is used as a game medium is set in the housing 11 of the gaming machine 10. However, the gaming machine 10 of the present embodiment is designed such that, instead of the pachinko gaming machine main body 12, a main body (gaming machine main body) of a gaming machine (a slot machine, for example) where other game medium (a medal, for example) is used in a game can be set in the housing 11.

In other words, the gaming machine 10 is designed such that the gaming machine main body where a game is played using mutually different types of game media can be selectively set in the housing 11.

For example, in the present embodiment, instead of the pachinko gaming machine main body 12 where a game ball is used as a game medium, the slot machine main body 400 where a medal is used as a game medium can also be attached to the housing 11. Specifically, in Fig. 13 the gaming machine 10 is constructed by integrating the housing 11 which is a housing equipped with the medal lending machine 12a, and the slot machine main body 400 attached to the housing 11, whereby an individual bank is constructed.

The slot machine main body 400 is now described hereinbelow.

The inside of a cabinet in the central portion of the slot machine main body 400 is provided with three reels 402, 403 and 404 rotatably. These reels 402, 403 and 404 variably display various symbols used in a game in a plurality of columns. Columns of symbols consisting of a plurality of types of symbols (referred to as "symbol" hereinafter) are drawn on the outer peripheral surface of each of the reels 402, 403 and 404. The front part of each of the reels 402, 403 and 404 is provided with a reel display window portion 439. Of the symbols drawn on the outer periphery of each of the reels 402, 403 and 404, three symbols each are viewed through display windows 405, 406 and 407 formed on the reel display window portion 439.

Here, the reels 402, 403 and 404 and the transparent display region of the reel display window portion 439 comprise symbol displaying means. Further, the reels 402 to 404 stop and display a predetermined winning combination on the basis that a winning combination determined by winning combination determining means, which is described hereinafter, is a predetermined combination.

The reel display window portion 439 is provided with a total of five pay lines, three horizontal lines and two diagonal lines.

Further, below the display windows 405 to 407 is provided with a liquid crystal display device 440. Information and the like related to the game is displayed on a display screen 440a of the liquid crystal display device 440.

Furthermore, the right side below the display windows 405 to 407 is provided with an insertion slot 408 into which a player puts a medal which is a game medium. However, in the present embodiment, a medal is inserted into the medal insertion slot 37 provided in the medal lending machine 12a, thus the insertion slot 408 equipped in the slot machine main body 400 is not used. However, this pattern is not the only applicable pattern, a game can be played by inserting a medal into the insertion slot 408.

Prior to starting a game, when a player inserts one coin into the coin insertion slot 38, the coin is detected by the inserted-coin sensor, and a coin insertion detection signal is transmitted to the base board 30. The coin insertion detection signal is then transferred to the main CPU 464 of the slot machine main body 400 from the base board 30. The main CPU 464 which receives this transfer adds "1" to the credit data of the coin and stores the data in the main RAM 203.

Accordingly, the coin is credited in the slot machine main body 400, and the number indicated by the abovementioned credit data of the coin is displayed in the credit number display portion 31.

Moreover, by pushing the credit transfer button 33, the credit data of the coin is converted into credit data of a medal. For example, credit data of the coin "1" is converted into credit data of a medal "7".

Prior to starting a game, when the player inserts one medal into the medal insertion slot 37, the medal is detected by the inserted-medal sensor, and a medal insertion detection signal is transmitted to the base board 30. The medal insertion

detection signal is then transferred to the main CPU 464 of the slot machine main body 400 from the base board 30. The main CPU 464 which receives this transfer adds "1" to the credit data of the medal, and stores the data in the main RAM 203.

Accordingly, the medal is credited in the slot machine main body 400, and the number indicated by the abovementioned credit data of the medal is displayed in the medal number display portion 34.

It should be noted that the number indicated by the abovementioned credit data of the medal may be displayed in an accumulated-number display portion 416 which is described hereinafter.

By pushing the credit settlement button 32, the credit data of these coins and medals is paid out. At this time, the medal payout signal is generated by the main CPU 464.

Further in the present embodiment, when a medal is inserted into the medal insertion slot 37, the medal is once credited. However, this is not the only applicable pattern, thus making the reels active, which can be performed by pushing accumulated-medal insertion switch 426 to 428 described hereinafter, may be performed at the timing when the medal is inserted into the medal insertion slot 37. The procedure of this case is described hereinbelow.

When the player inserts one medal into the medal insertion slot 37, a pay line L1, which is one horizontal line in the middle, is made active. When two medals are inserted, pay lines L1, L2A and L2B, which are the three horizontal lines with two horizontal pay lines upper and lower the pay line L1, are made active. When three medals are inserted, all the five pay lines L1 (center line), L2A (top line), L2B (bottom line), L3A (cross-down line, and L3B (cross-up line) are made active.

A machine front surface panel 438 on the left hand of the display windows 405 to 407 is provided with, from top, attraction member continuous operation increasing device operation display unit 409, attraction member continuous operation device operation display unit 410, replay display unit 411, game stop display unit 412, three inserted-game medal number display lamps 413 to 415, accumulated-number display unit 416, and start lamp 417. The display units 409 to 412 and the inserted game medal number display lamps 413 to 415 are lighted up and controlled in accordance with the game status, and the player is notified of the game status at that time and the number of inserted medals. The accumulated-number display unit 416 is composed of a 3-digit seven-segment LED (light-emitting diode), and displays the number of medals which are currently credited in the slot machine main body 400. The start lamp 417 blinks when each of the reels 402 to 404 is operable.

Further, the machine front surface panel 438 on the right hand of the display windows 405 to 407 is provided with, from top, a bonus count display portion 418, WIN lamp 419, award number display portion 420, and an insert lamp 421. The bonus count display portion 418 is composed of a 3-digit seven-segment LED, and digitally displays the remaining number that a winning is possible in a RB game and a jack game, which are described hereinafter, at the time of winning in a bonus game. The WIN lamp 419 lights up when symbols of a winning combination are aligned on a pay line which is activated (referred to as "activated pay line"). The award number display portion 420 is composed of a 3-digit seven-segment LED, and displays the number of medal award obtained by winning. The insert lamp 421 lights up when insertion of a medal can be accepted by the insertion slot 408.

On the left hand and at lower portion of the machine front surface panel 438 there are provided a cross key 423, A button 424, B button 425, 1 accumulated-medal insertion switch 426, 2 accumulated-medal insertion switch 427, and 3 accumulated-medal insertion switch 428. The cross key 423 which is operated so as to switch among four directions of up, down, right and left, is operated along with the A button 424 and B button 425, and is used when selecting the information displayed on a display panel 440a. Moreover, the accumulated-medal insertion switches 426 to 428 are used when the number of medals is displayed on the accumulated-number display portion 416 and credited, and when one to three medals are bet in one game (when the reels are activated).

The lower side of the liquid crystal display device 440 is provided with, from the left, an accumulated-medal settlement switch 429 (this is not used in the present embodiment), a start lever 430, and stop buttons 431, 432 and 433. The start lever 430 comprises game start means for starting a game. Rotations of the reels 402 to 404 are started all together by operating the start lever 430. The stop buttons 431 to 433 are disposed so as to correspond to each of the reels 402 to 404, and the respective operations thereof are activated when the rotations of the reels 402 to 404 reach a predetermined speed. The player stops the rotation of the reels 402 to 404 in accordance with the operation. Each of the stop buttons 431 to 433 comprises stop instruction means for stopping displaying rotational movement of each of the reels 402 to 404.

Further, the upper part of the front face of the slot machine main body 400 is provided with an award display portion 436 for indicating how many medals are paid out for a winning.

Also there is provided a winning symbol combination table which is set in advance in the slot machine main body 400 of the present embodiment, and the table is shown in the award display portion 436 on the upper part of the front face of the slot machine main body 400. If a combination of symbols "red 7" - "red 7" - "red 7" is lined up on the activated pay line in a general game, fifteen medals are distributed, and thereafter a BB (big bonus) game is executed. Also, if a combination of symbols "blue 7" - "blue 7" - "blue 7" or a combination of symbols "BAR" - "BAR" - "BAR" is lined up on the activated pay line in a general game, fifteen medals are distributed, and thereafter a RB (regular bonus) game is executed.

If three each of symbols "watermelon" and "bell" are lined up respectively on the activated pay line, a small winning is obtained, whereby fifteen medals and ten medals are distributed respectively. Further, if three symbols "plum" are lined up on the activated pay line, the game is replayed, which means that the game is played one more without inserting a medal though no medals are paid out. This combination of the three symbols "plum" is also a combination indicating generation of a jack game winning during a RB game. This jack game is a game in which a combination of "plum" - "plum" - "plum" is lined up on the central pay line L1 during the RB game.

Also if one symbol "cherry" stops on one activated pay line of the first reel 3 during a general game, a small winning is obtained, whereby "two cherries" is obtained in which two medals are distributed. If one symbol "cherry" stops on two activated pay lines when three medals are bet, "four cherries" is obtained in which four medals are distributed.

Here, the number of the distributed medals described above is added to the credit data of the medal which is stored in the main RAM 203. However, this pattern is

not the only applicable pattern, thus medal payout may be performed by immediately generating a medal payout signal by means of the main CPU 464.

Fig. 14 is a block diagram showing the circuitry of the control system of the gaming machine shown in Fig. 13.

The above-described slot machine main body 400 comprises a main control board 461 and a sub control board 462a for controlling a game processing operation of the slot machine main body 400.

Further, the main control board 461 comprises a main control circuit, and the sub control board 462a comprises an image control circuit, and sound/lamp control circuit.

The hopper portion 40 and the base board 30 for controlling an operation of processing of the medal lending machine 12a are connected to the main CPU 464 (described hereinafter) of the slot machine main body 400 via an I/O port of a microcomputer 463.

Moreover, the hopper drive circuit 41a and the payout completion signal circuit 43 are connected to the main CPU 464 of the slot machine main body 400 via the I/O port.

The hopper portion 40 of the medal lending machine 12a is mounted with the hopper 40a, and the medal detection portions 40Sa and 40Sb. The hopper 40a is connected to the hopper drive circuit 41a of the slot machine main body 400, and each of the medal detection portions 40Sa and 40Sb is connected to the payout completion signal circuit 43 of the slot machine main body 400.

It should be noted that when generating a medal payout signal, the main CPU 464 of the slot machine main body 400 causes the hopper 40a to pay out the number of

medals indicated by the medal payout signal by controlling drive of the hopper 40a through the hopper drive circuit 41a and the like.

The control portion in the main control board 461 has the microcomputer (referred to as "micon" hereinafter) 463 as the main constituent, and is constituted such that the micon 463 is added with a circuit for random number sampling. The micon 463 comprises the main CPU (central processing unit) 464 for performing a control operation in accordance with a previously set program, a program ROM (read only memory) 465 which is program storage means, and a control RAM (random access memory) 466 with a backup function. A clock pulse generation circuit 467 for generating standard clock pulses, a frequency divider 468, a random number generator 469 for generating random numbers in a fixed range, and a random number sampling circuit 470 for specifying one of the generated random numbers are connected to the main CPU 464. An I/O port 471, which transfers a signal to and from peripheral equipment (actuators) described hereinafter, is also connected to the main CPU 464. A storage portion of the ROM 465 is divided into several portions for storing a winning probability table, a symbol table, a winning symbol combination table, and a sequence program and the like.

An example of a primary actuator whose operation is controlled by a control signal sent from the micon 463 includes a stepping motors 445 which rotatably drive the reels 402, 403 and 404 respectively. This is controlled by a motor drive circuit 73. The drive circuit 73 is connected to the CPU 464 of the micon 463 via the I/O port 471.

Further, examples of primary input signal generation means for generating an input signal necessary for the micon 463 to generate a control signal include a start switch 430S for detecting an operation of the start lever 430, the abovementioned

accumulated-medal insertion switches 426 to 428 and accumulated-medal settlement switch 429. The start switch 430S constitutes game start command means for outputting a game start command signal on the basis of a result of an operation of the player. The micon 463 constitutes winning combination determination means for determining a predetermined winning combination as a winning combination on the basis that the game start command signal, which is outputted from game start command means, is inputted.

An example of the above-described input signal generation means includes a reel position detection circuit 477 for detecting a rotational position of each of the reels 402, 403 and 404 in response to an output pulse signal sent from a photosensor 449. The photosensor 449 is included in a drive mechanism of each of the reels 402 to 404, and is not shown in the figure. The reel position detection circuit 477 calculates the number of drive pulses supplied to the stepping motors 445 after the reels 402 to 404 start rotating, and writes the calculated value into a predetermined area of the RAM 466. Therefore, a calculated number corresponding to a position of rotation in a range per rotation is stored for each of the reels 402 to 404 in RAM 466. The photosensor 449 detects a blocking member (not shown) every time each of the reels 402 to 404 is rotated and generates a reset pulse. This reset pulse is provided to the CPU 464 via the reel position detection circuit 477, and the calculated value of the drive pulses, which is calculated by the RAM 466, is cleared to "0". A deviation caused between display of movement of each symbol and rotation of each stepping motor 445 is eliminated by this clearing processing.

The above-described micon 463, stepping motor 445, and the reel position detection circuit 477 constitutes stop control means for causing the reels 402 to 404 to

stop and display a predetermined winning combination on the basis that a winning combination is a predetermined winning combination.

Further, as the above-described input signal generation means, there are a reel stop signal circuit 478 which generates a signal for stopping a corresponding reel when the stop buttons 431, 432 and 433 are pushed,

the medal payout completion signal which is transmitted from the payout completion signal circuit 43, various signals transmitted from the base board 30, and the like.

Each circuit constituting these input signal generation means is also connected to the CPU 464 via the I/O port 471.

Also, a sub control portion communication port 479 is connected to the I/O port 471, and the micon 463 sends out a signal to the sub control board 462a via this sub control portion communication port 479.

The gaming machine 10 of the present embodiment can be used to play a game as a slot machine by attaching the slot machine main body 400 with above configuration to the housing 11.

Further, in the gaming machine 10 in which the slot machine main body 400 with the above configuration is attached to the housing 11, although the medals credited in the slot machine main body 400 is settled by pushing the credit settlement button 32 to payout the medals from the hopper 40a of the medal lending machine 12a, this pattern is not the only applicable pattern, thus the payout may be performed by pushing the accumulated-medal settlement switch 429 attached to the slot machine main body 400.

Moreover, in the gaming machine 10 in which the slot machine main body 400 is attached, although the credit data of coins and the credit data of medals are stored in the CPU 464 of the slot machine main body 400, this pattern is not the only applicable pattern, thus they may be stored in the storage device mounted in the base board 30. Regarding the processing performed on the above credit data and the credit data of medals by the main CPU 464, a CPU equipped in the base board 30 may perform this processing, instead of the main CPU 464.

As above, according to the present embodiment, the gaming machine main body, such as the pachinko gaming machine main body 12 or slot machine main body 400, is provided with the main CPU 201 and the main CPU 464 for performing control regarding determination of the number of medals to be paid out and payout of the medals of the hopper 40a, whereby the medals are paid out from the medal lending machine 12a. Therefore, the medal lending machine 12a can be shared in the gaming machine main body using different game media, whereby the gaming machine 10 of individual bank type, which can be selectively used by a gaming machine main body on which a game is played with different types of game media, can be obtained.

Furthermore, according to the present embodiment, medals are handled in the medal lending machine 12a installed on one end of the gaming machine main body 12 (the right side in the case shown in Fig. 1 or Fig. 13), thus the medals do not pass through the gaming machine main body. Therefore, the gaming machine main body can be replaced without changing the design thereof.

Accordingly, it is easy to replace the gaming machine main body where a game is played using different game media, and the designing cost can be reduced, thus variety can be added to games.

In addition, according to the present embodiment, since the main CPU 201 and the main CPU 464 perform control regarding payout of the medals of the hopper 40a under the condition that the player performs a predetermined operation, medals can be paid out at the timing desired by the player, whereby the convenience can be obtained.

In the above-described embodiments, there is explained a case in which the pachinko gaming machine main body and the slot machine main body as the gaming machine main bodies can be selectively attached. However, the gaming machine of the present invention is not limited to these, and various gaming machines including a gaming machine, such as Jong-kyu, Smart ball, and the like, can be applied.

CLAIMS:

1. A gaming machine, comprising:
a housing which is provided with an accepting machine comprising game media payout means for paying out a game medium;
and a gaming machine main body on which a game can be played according to a game value of game media or financial media, the gaming machine main body being provided connectably in the accepting machine, fixed to the housing, and equipped with game value providing means for providing a specific game value once a predetermined condition is established, and with game media payout control means for controlling game media payout means of the accepting machine in accordance with the game value provided by the game value providing means,
wherein the gaming machine main body, on which a game is played with different types of game media, can be selectively installed in the housing.
2. The gaming machine according to Claim 1, wherein the game media payout control means controls the game media payout means under the condition that a player performs a predetermined operation.
3. The gaming machine according to Claim 1 or 2, wherein the accepting machine accepts the financial media, whereby the game medium is lent out.
4. The gaming machine according to any of Claims 1 to 3, wherein the accepting machine is provided on either the right side or left side of the position where the gaming machine main body is installed in the housing.
5. The gaming machine according to any of Claims 1 to 4, wherein the game media payout means is a hopper.

6. The gaming machine according to any of Claims 2 to 5, wherein the predetermined operation is a push operation of a predetermined button provided in the accepting machine.

7. The gaming machine according to any of Claims 2 to 6, wherein credit data which is credited in the accepting machine provided in the housing is converted to quantity data of a game medium used in a game of the gaming machine main body.

8. The gaming machine according to any of Claims 1 to 7, wherein the gaming machine main body in which a game is played with different types of game media is a pachinko gaming machine main body and a slot machine main body.