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(54) **GAME MACHINE**

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(57) **ABSTRACT**

A game machine includes a plurality of displays, each of displays displaying at least one reel bearing series of symbols. The displays are arranged along a closed circuit so that display faces are opposed to a plurality of players.

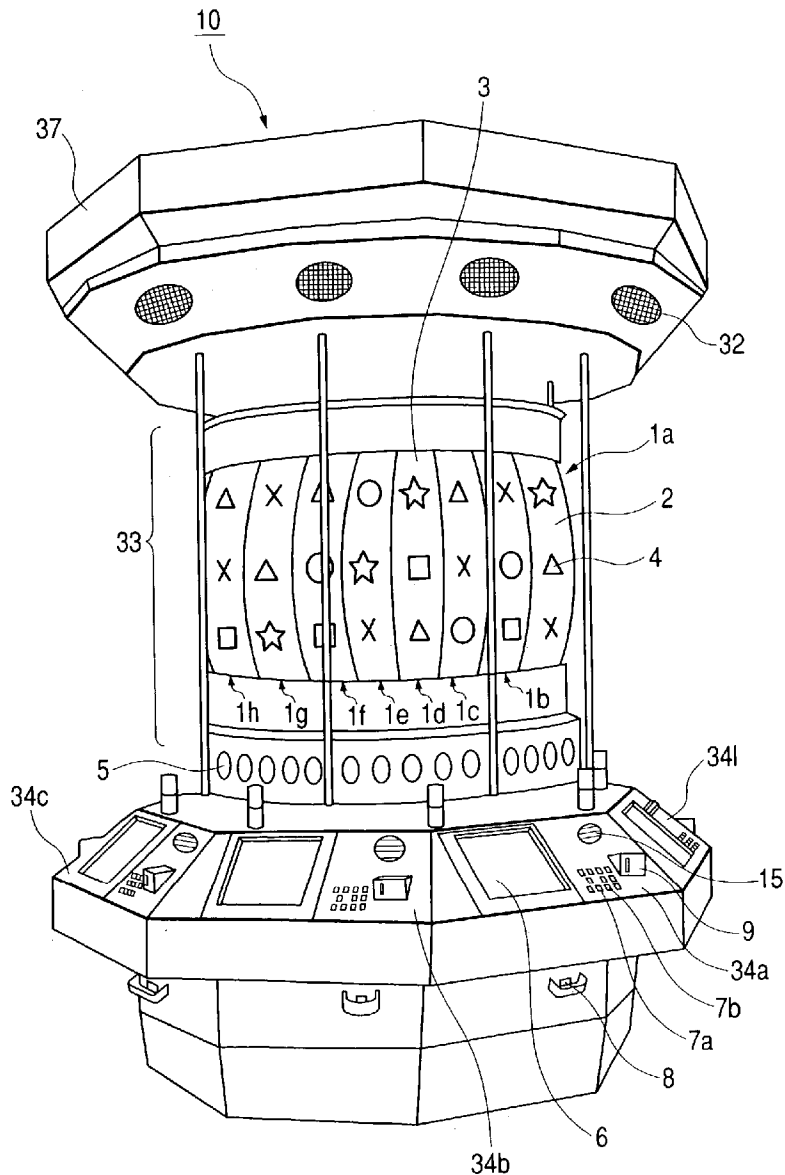


FIG. 1

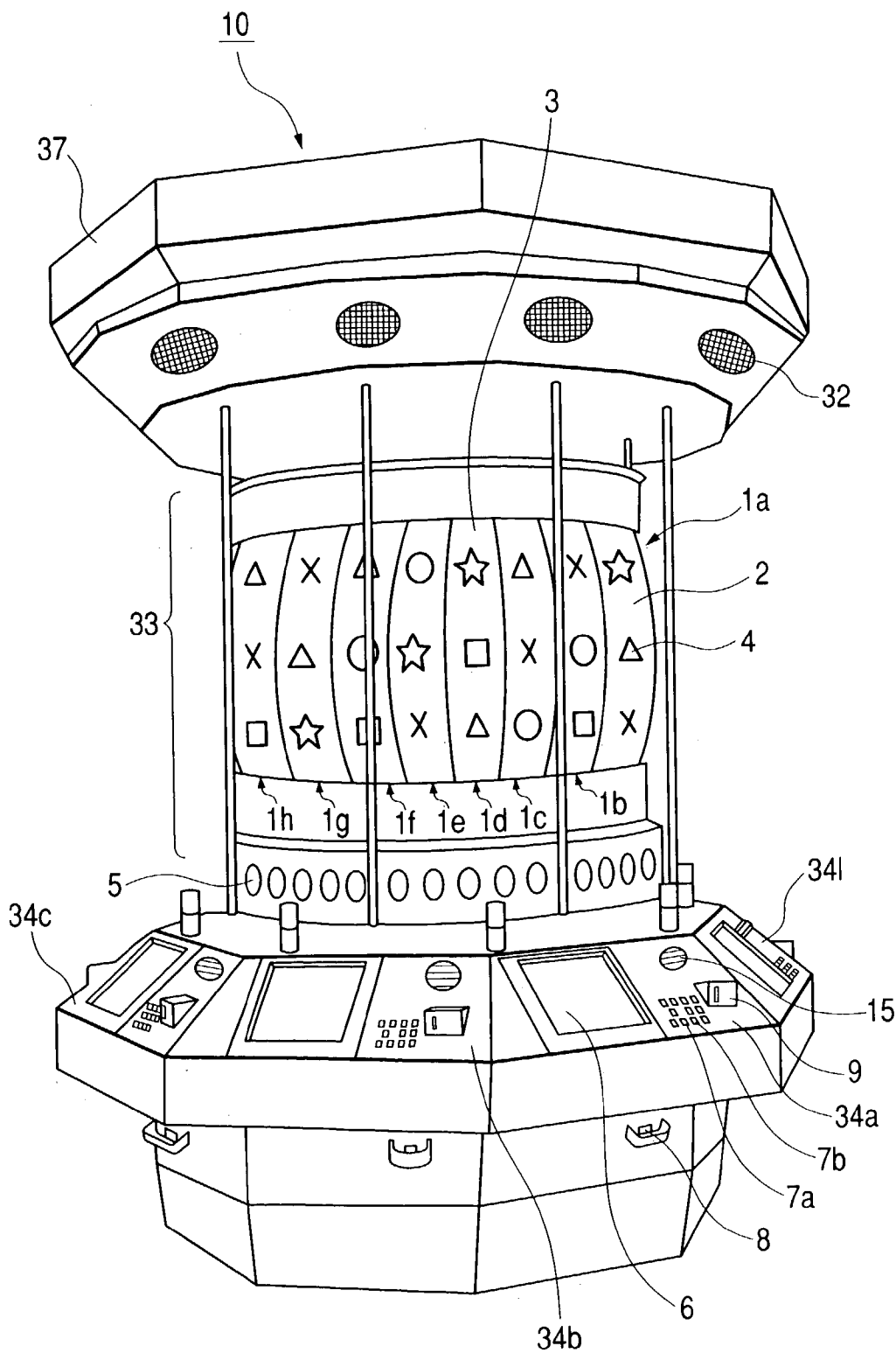


FIG. 2

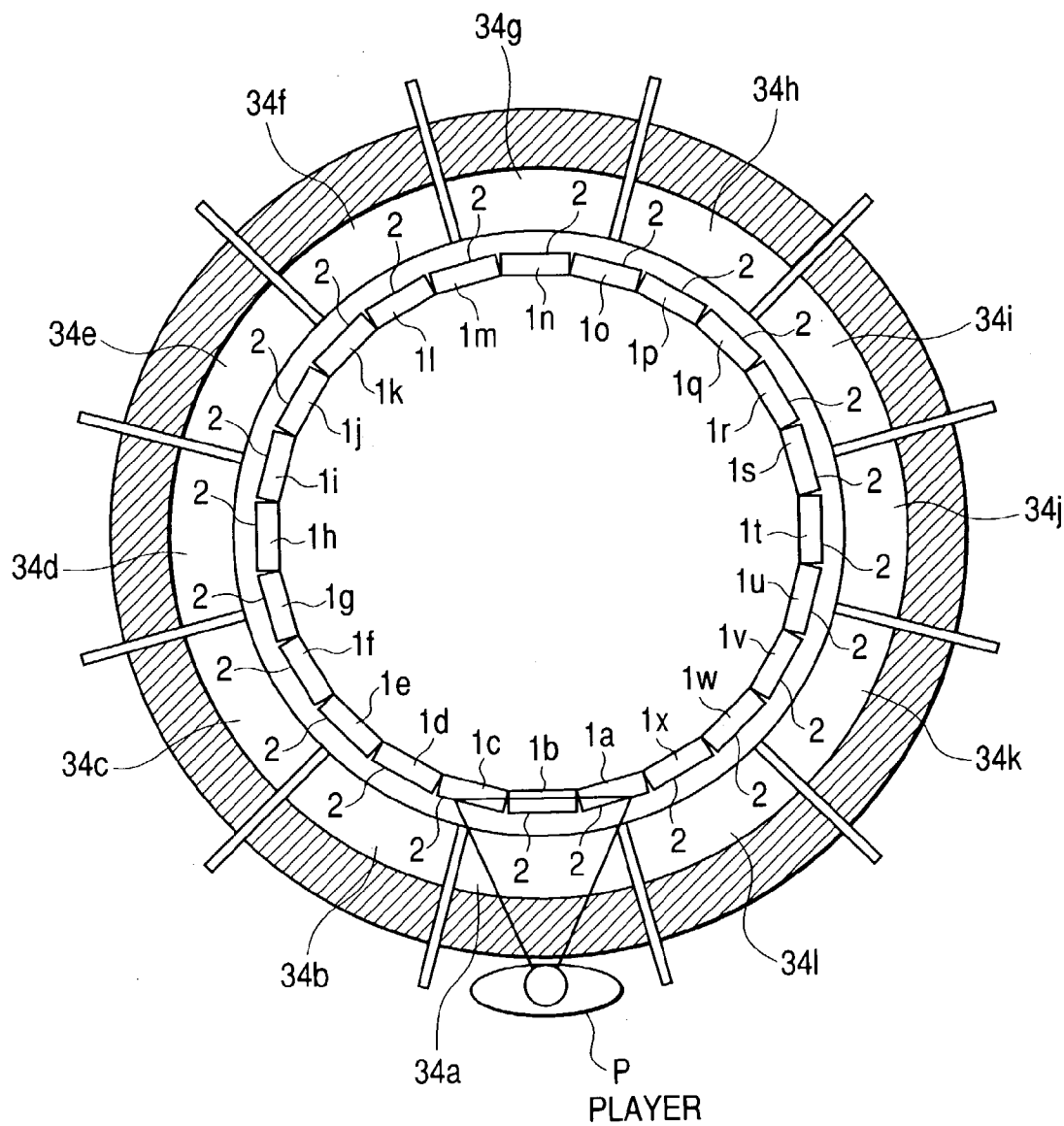


FIG. 3

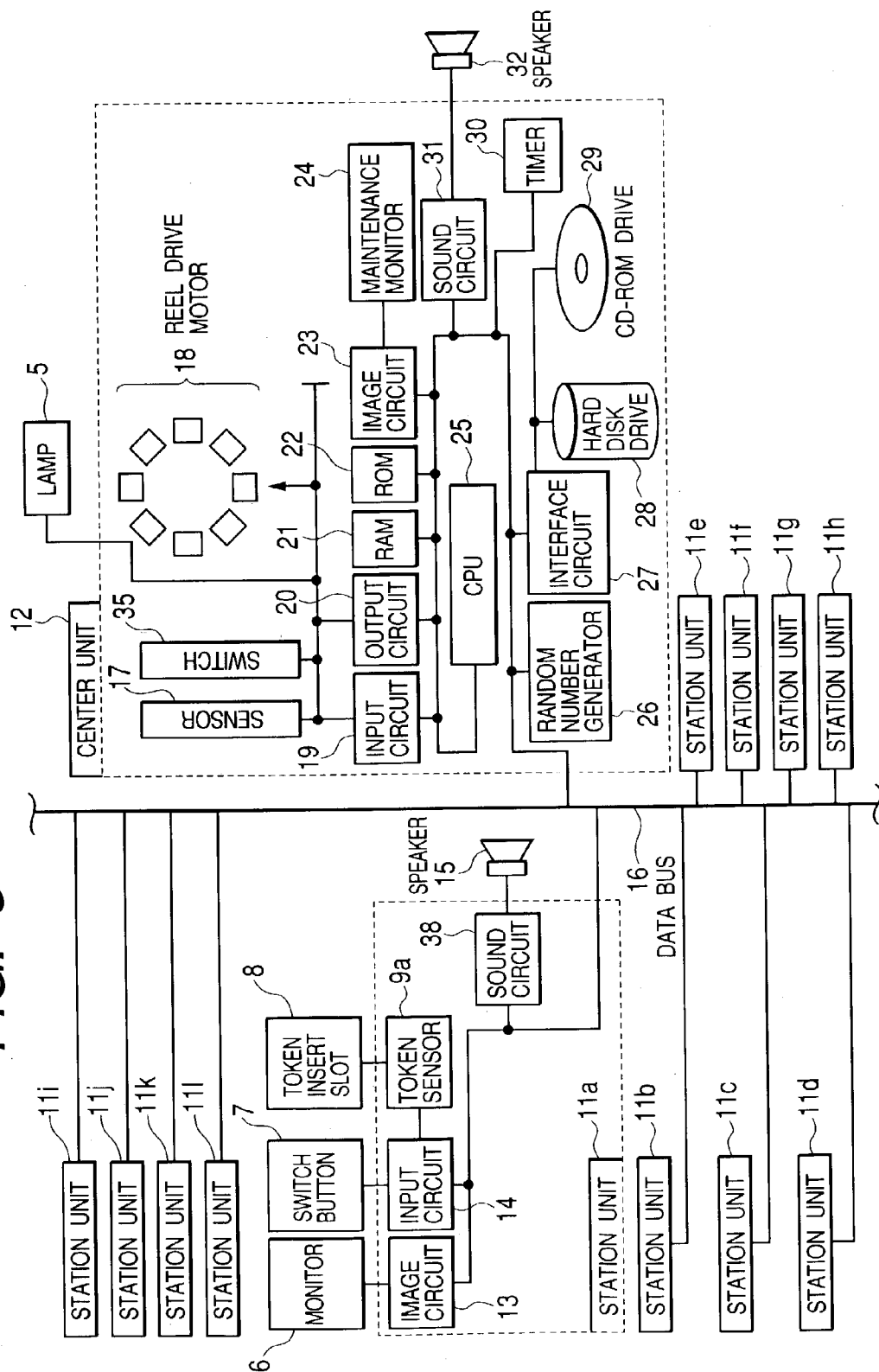


FIG. 4

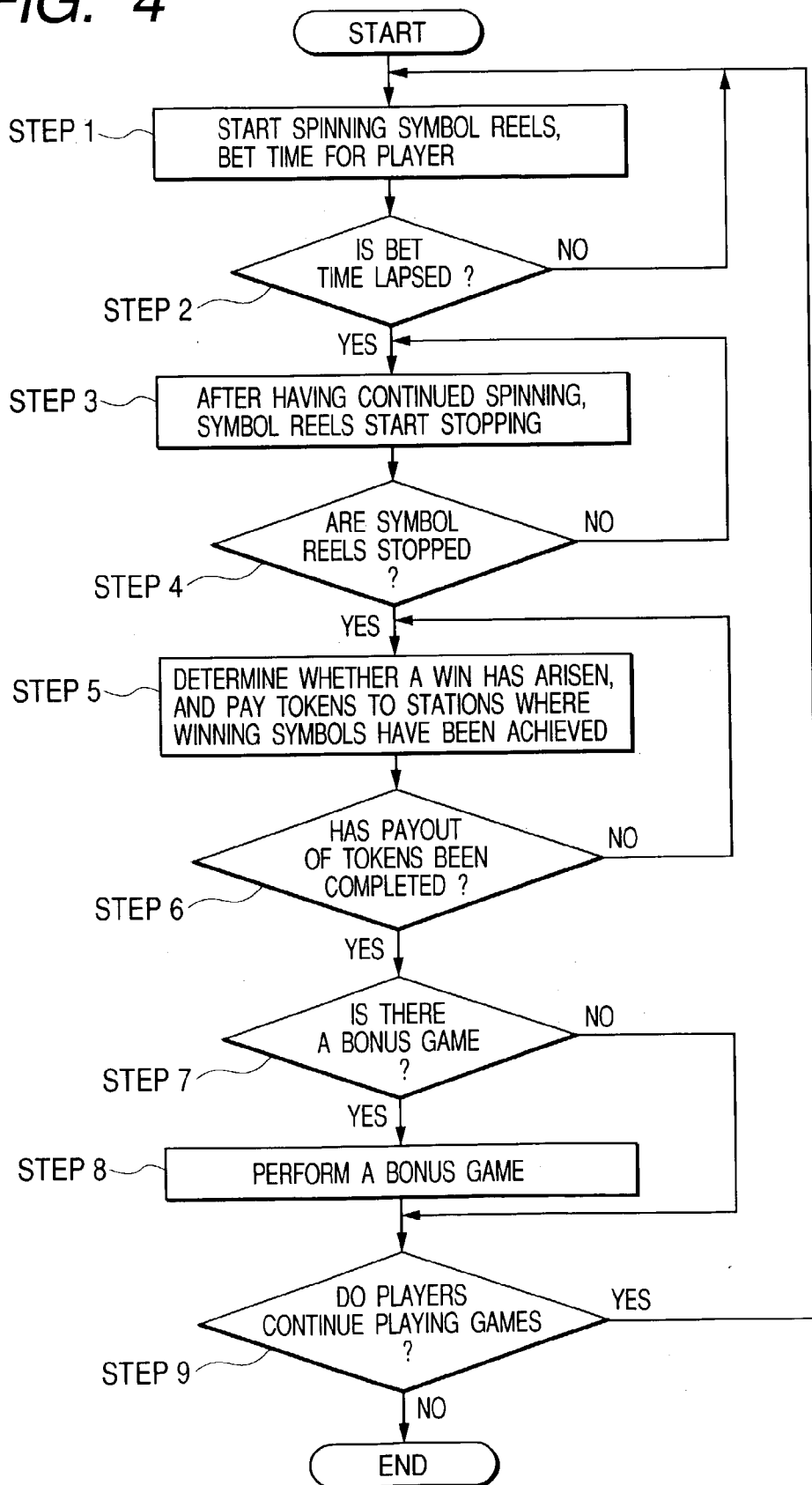


FIG. 5

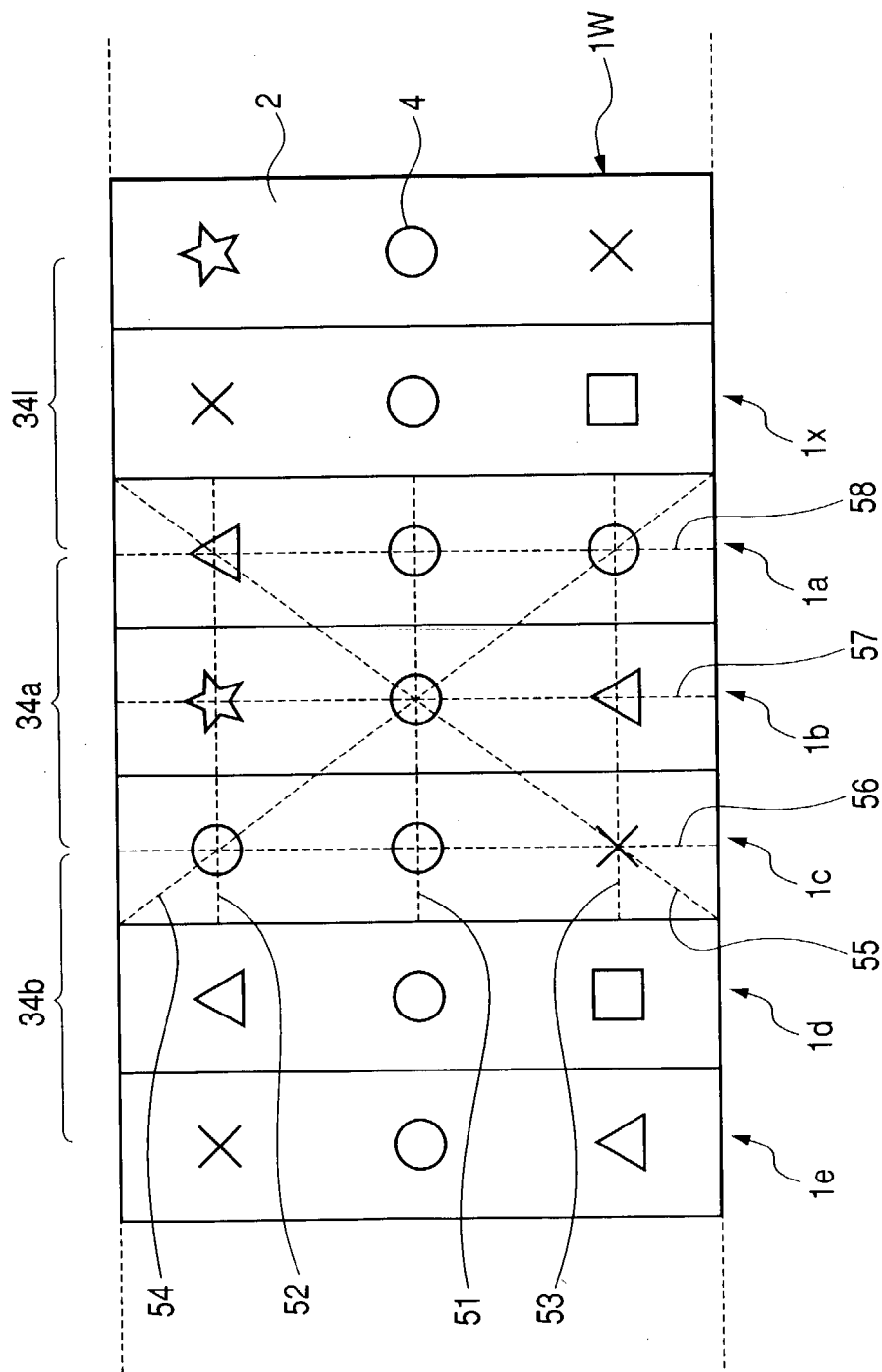


FIG. 6B

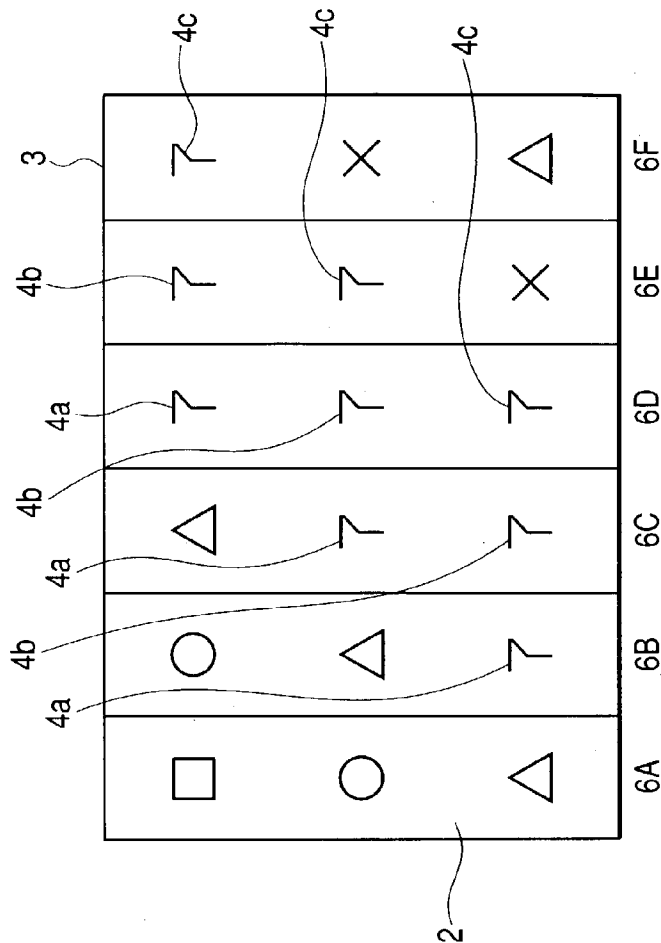


FIG. 6A

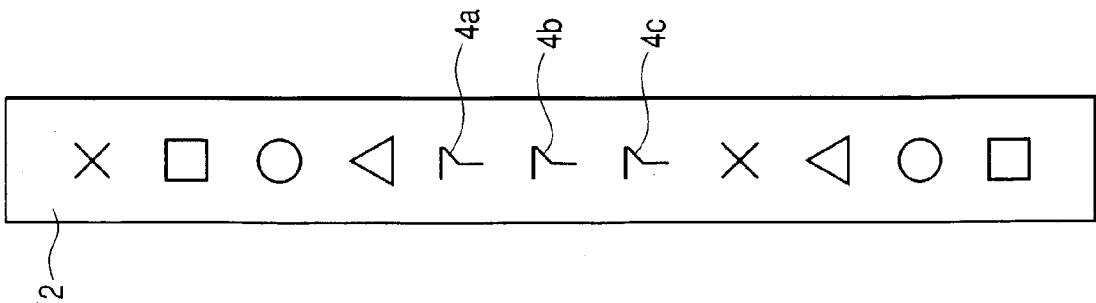


FIG. 8A

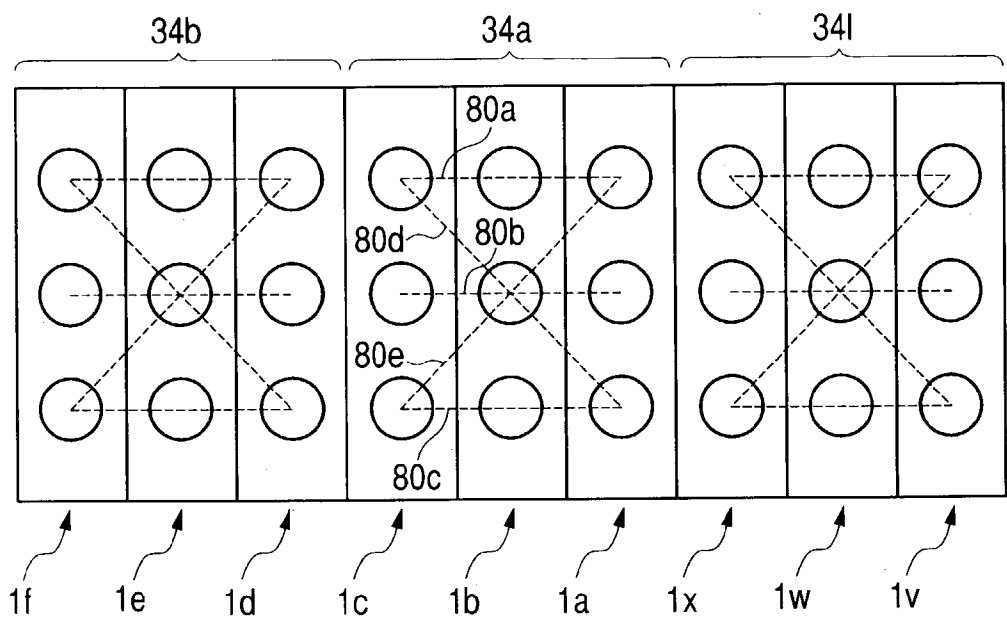


FIG. 8B

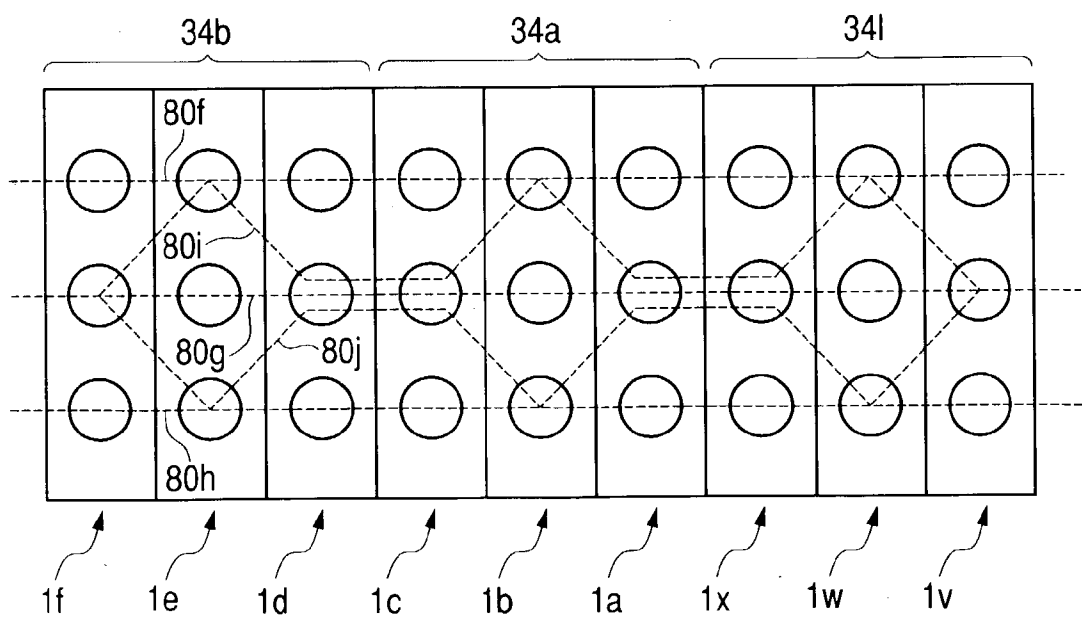


FIG. 9

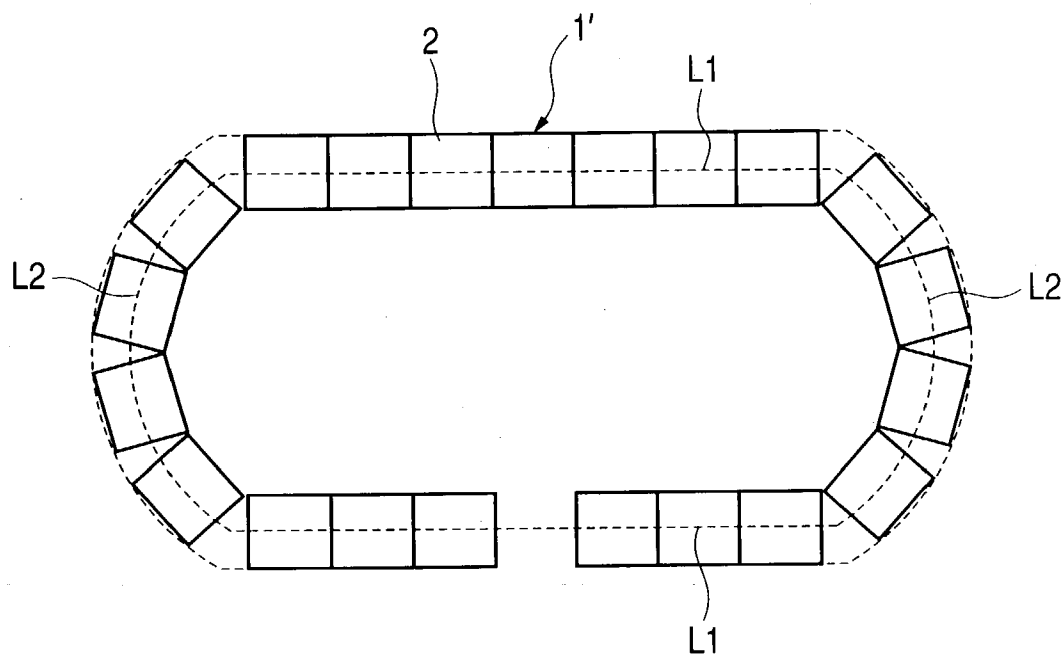


FIG. 10

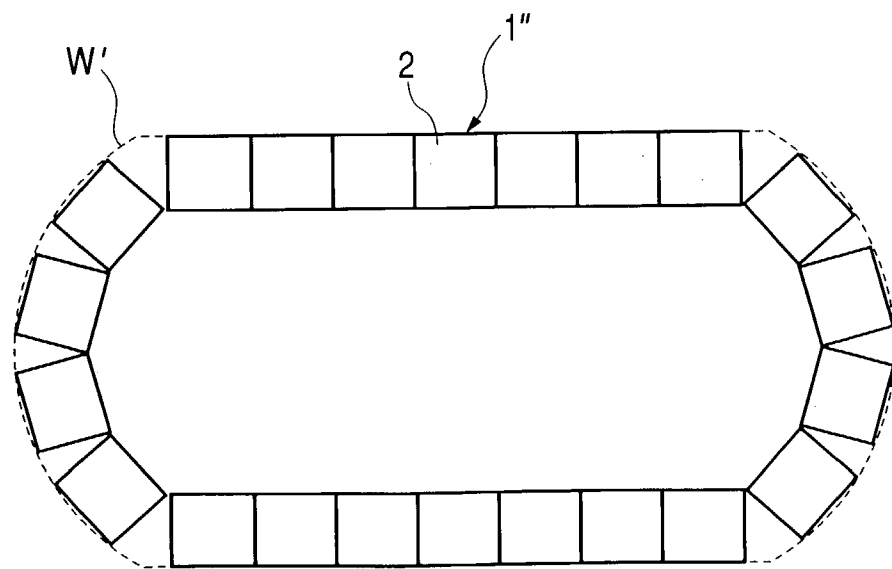


FIG. 11

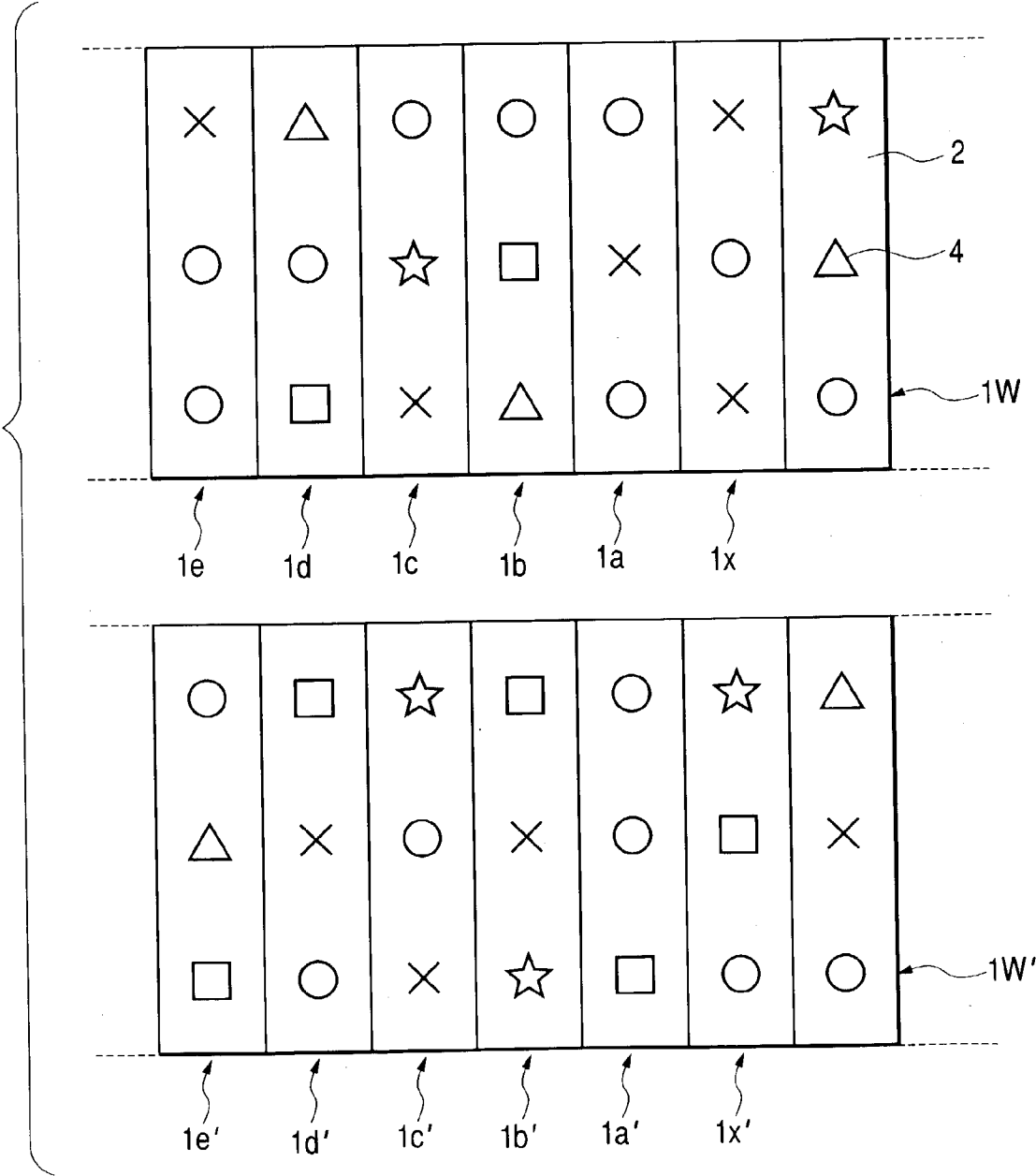


FIG. 12

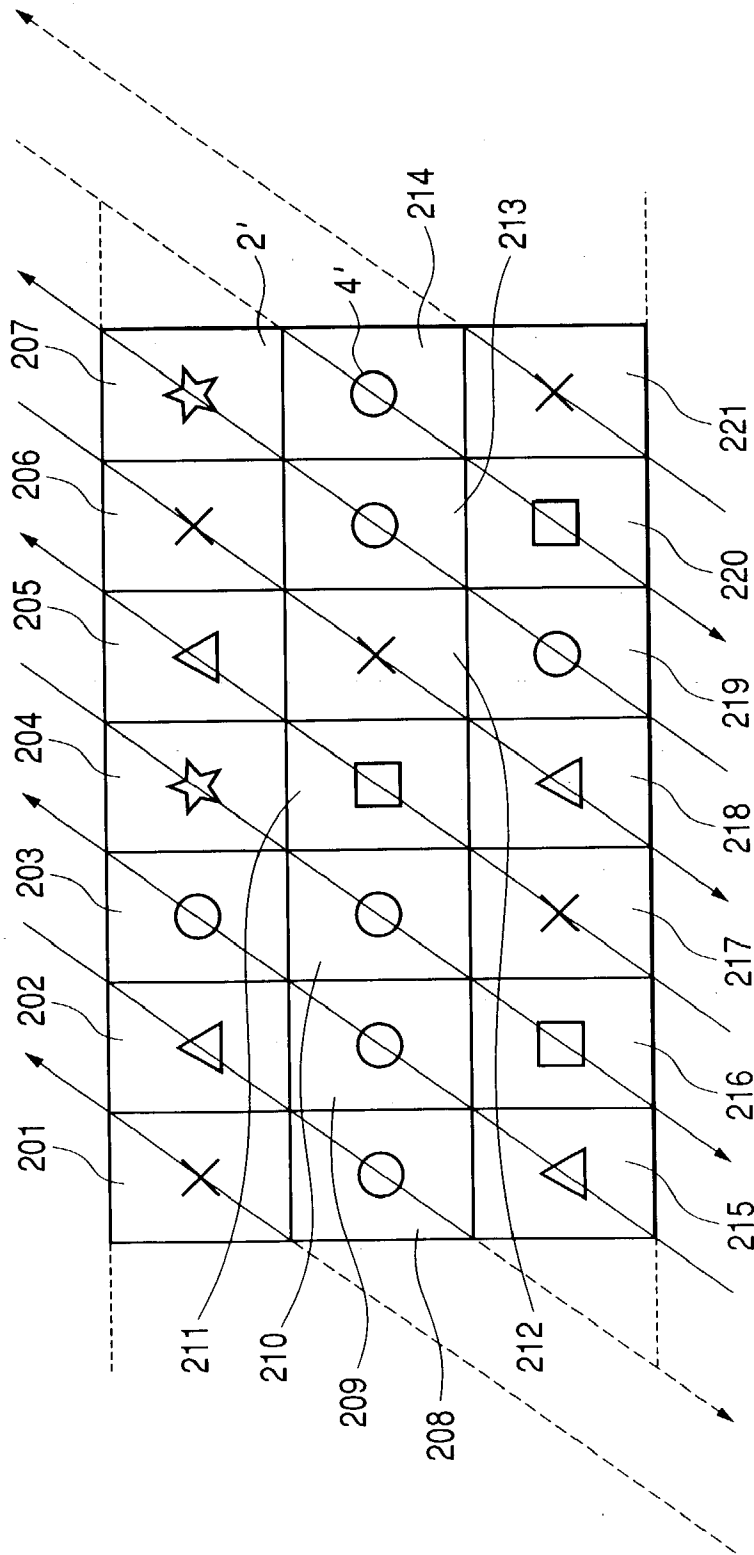
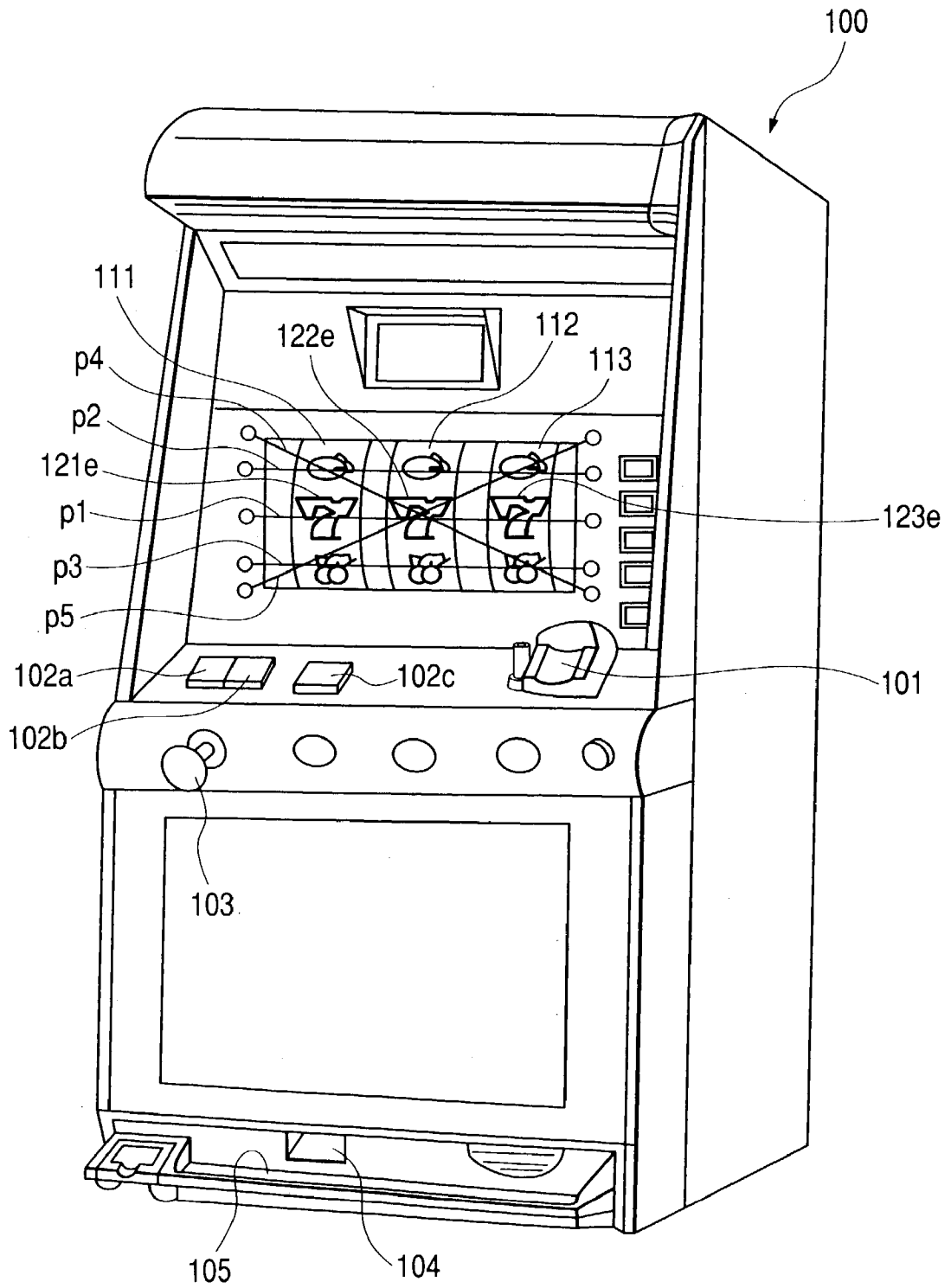


FIG. 13



GAME MACHINE

BACKGROUND OF THE INVENTION

[0001] The invention relates to a game machine, such as a slot machine and, more particularly, to a game machine which enables a plurality of players to play games together and affords an incentive for playing a game.

[0002] Currently, a slot-type game machine **100** shown in **FIG. 13** is a known game machine in which one player plays a game. In order to effect gaming, the game machine uses a game value, (e.g., tokens, paper currency, coins, or some form of credit medium, such as a credit card). When playing a game, a player inserts, e.g., a token into a token insert slot **101**. In accordance with the number of inserted tokens, the player plays games. The related slot machine-type game machine **100** has a reservoir for inserted tokens. More specifically, when tokens are inserted via the token insert slot **101**, the number of inserted tokens are counted one by one by a predetermined sensor. The count (credit) is then stored in a predetermined storage of the game machine. The thus-counted value is displayed on a display (not shown) which is to be provided at a predetermined location on the game machine and consists of a seven-segment LED display. The player actuates credit bet buttons **102a**, **102b**, and **102c**, which will be described later, so as to bet a predetermined number of tokens on one or more desired winning lines, thereby rendering the winning line(s) effective and playing a game.

[0003] As shown in **FIG. 13**, the related game machine **100** of slot machine type has horizontally-oriented winning lines **p1**, **p2**, and **p3**; a lower-right-declining winning line **p4**; and a lower-left-declining winning line **p5**. As mentioned below, selection of the winning lines **p1**, **p2**, **p3**, **p4**, and **p5** is performed in accordance with operation of the credit bet buttons **102a**, **102b**, and **102c**, and the thus-selected winning lines are made effective.

[0004] When the credit bet button **102a** is pressed once, the winning line **p1** is selected and rendered effective. Every time the credit bet button **102a** is pressed once, one credit (i.e., one token) is consumed, whereupon the number of credits bet on the winning line **p1** is incremented by one credit (one token).

[0005] When the credit bet button **102b** is pressed once, the winning lines **p1**, **p2**, and **p3** are selected and rendered effective. Every time the credit bet button **102b** is used once, three credits (i.e., three tokens) are consumed, whereupon the number of credits bet on the respective winning lines **p1**, **p2**, and **p3** is incremented by one credit (i.e., one token).

[0006] When the credit bet button **102c** is pressed once, the winning lines **p1**, **p2**, **p3**, **p4**, and **p5**; that is, all the winning lines, are selected and rendered effective. Every time the credit bet button **102c** is pressed once, five credits (i.e., five tokens) are consumed, whereupon the number of credits bet on all the winning lines is incremented by one credit (one token).

[0007] If the player operates the credit bet button **102a**, the player can bet a predetermined number of credits while taking an aim at only the winning line **p1**. Further, if the player operates the credit bet button **102b**, the player can bet a predetermined number of credits while taking an aim at only the horizontally-oriented winning lines **p1**, **p2**, and **p3**.

If the player operates the credit bet button **102c**, the player can bet a desired number of credits on all winning lines.

[0008] More specifically, the player can strategically determine one or more winning lines to be made effective and the number of credits to be bet on the winning line(s), in accordance with the degree of the player's perceived luck at that time.

[0009] In the related slot machine type game machine **100**, reels **111** through **113** start spinning as a result of depressing of a start lever **103**. A predetermined number of symbols **121e** . . . , **122e** . . . , **123e** . . . are drawn on an outer peripheral face of each of the reels **111** through **113**.

[0010] After the start lever **103** has been actuated, the reels **111** through **113** continue spinning for a while. Subsequently, spinning of all the reels is automatically stopped.

[0011] If the symbols **121e** . . . , **123e** . . . drawn on the reels **111** through **113** are aligned with the winning line that has been selected and made effective by the player, so as to constitute a predetermined winning combination when all the reels **111** through **113** are stopped, the number of tokens corresponding to the winning combination are paid out to a token receiver **105** via a token payout hole **104**.

[0012] Here, the predetermined winning combination is a meaning of identical symbols of the symbols drawn on all the reels **111** through **113** being aligned with the winning line. Specifically, symbols 7 or BELL are aligned with a winning line in such a manner as 7-7-7 or BELL-BELL-BELL.

[0013] The related slot machine type game machine **100** shown in **FIG. 13** that has been described thus far is constructed on the assumption that a single player plays games on the machine, in consideration of the visibility, number, and dimensions of the respective reels **111** through **113**.

[0014] As mentioned above, the related slot machine type game machine **100** is designed on the assumption that a single player plays games on the machine, and is not designed so that a plurality of players can play games on a single machine at the same time.

[0015] Even if a plurality of game machines **100** are disposed and a plurality of players play games, the game machines **100** are spaced a substantial interval apart from each other. Therefore, a player encounters difficulty in viewing symbols **121e** . . . , **122e** . . . , and **123e** . . . drawn on the outer peripheral faces of the reels **111** through **113** of another machine. Moreover, players cannot play games as members of teams. Hence, the related slot machine type game machine produces a problem of a deficiency of entertainment or a failure to afford an incentive for playing games.

SUMMARY OF THE INVENTION

[0016] It is therefore an object of the present invention to provide a game machine, which enables a plurality of players to play games in conjunction with each other and afford an incentive for playing games.

[0017] In order to achieve the above object, according to the present invention, there is provided a game machine comprising:

[0018] a plurality of displays, each displaying at least one reel bearing series of symbols, and

[0019] wherein the displays are arranged along a closed circuit so that display faces are opposed to a plurality of players.

[0020] Preferably, the game machine further comprises a number of series symbol combination selector, which changes a number of reels on the game machine in accordance with a player's operation.

[0021] In the above configurations, a plurality of players can view symbols on display faces of a plurality of displays simultaneously, and hence the players can play games in conjunction with each other. Thus, entertainment is afforded to all the players, along with an incentive for playing games.

[0022] According to the present invention, there is also provided a game machine comprising;

[0023] a first display, which displays at least one reel bearing series of symbols; and

[0024] a second display, which displays at least one reel bearing series of symbols, and

[0025] wherein the first display is also provided as a shared display for using together with the second display.

[0026] In the above configuration, an interval between a player and another player can be shortened by an amount corresponding to the width of shared display. Hence, a larger number of players are arranged along the game machine, thus increasing the number of players.

[0027] Preferably, the reel in the shared display bears series same symbols, and a winning line extends along the reel in the shared display.

[0028] Preferably, a winning line extends through from the reel in the first display as the shared display to the reel in the second display.

[0029] Preferably, the first display and the second display are arranged along a closed circuit so that the display faces of the first display and the second display are opposed to a plurality of players.

[0030] In the above configurations, a joy can be shared among adjacent players when a win appearing along a shared winning line has been determined.

[0031] Preferably, both a first winning line for the first display and a second winning line for the second display extend through a symbol on the shared display.

[0032] In the above configuration, a player views a winning line which has been made effective by an adjacent player and has a contrivance of making the winning line effective in consideration of shared symbols corresponding to the winning line. Hence, the players can enjoy playing games according to a strategy.

[0033] According to the present invention, there is also provided a game machine comprising;

[0034] a plurality of display, each displaying at least one reel bearing series of symbols, and

[0035] wherein the winning line extends through at least two of the plurality of displays.

[0036] In the above configuration, symbol combinations can be complicated and further improved in the entertainment nature of a game.

[0037] Preferably, at least two displays are provided in the game machine in a vertical direction.

[0038] Preferably, at least two set of displays same as a set of the first display and the second display are provided in the game machine in a vertical direction.

[0039] Preferably, the series of symbols in the displays move in oblique direction.

[0040] Preferably, the series of symbols in the first and the second displays move in oblique direction.

BRIEF DESCRIPTION OF THE DRAWINGS

[0041] The above objects and advantages of the present invention will become more apparent by describing in detail preferred exemplary embodiments thereof with reference to the accompanying drawings, wherein:

[0042] FIG. 1 is an external view of a game machine according to the invention;

[0043] FIG. 2 is a top view of respective reels of the game machine of the invention;

[0044] FIG. 3 is a block diagram showing the configuration of each of station units and that of a center unit;

[0045] FIG. 4 is a flowchart showing procedures pertaining to processing to be executed by the game machine of the invention;

[0046] FIG. 5 is a view for describing winning lines;

[0047] FIGS. 6A and 6B are views for describing a case where a win is achieved by a combination of symbols along a vertical winning line;

[0048] FIG. 7 is a view showing shared symbols according to a second embodiment;

[0049] FIGS. 8A and 8B is a view showing winning lines shared without use of shared reels according to a third embodiment;

[0050] FIG. 9 is a view showing another example configuration of the invention;

[0051] FIG. 10 is a view showing still another example configuration of the invention;

[0052] FIG. 11 is a view showing yet another example configuration of the invention;

[0053] FIG. 12 is a view showing another example of the invention; and

[0054] FIG. 13 is a view showing a related slot-machine-type game machine.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0055] Embodiments of a game machine according to the invention will be described hereinbelow by reference to the drawings.

[0056] As shown in FIG. 1 which is an overview, a game machine 10 according to the invention enables a plurality of

players to play games. **FIG. 2** is a top view of reels **1a** through **1x** of the game machine **10**. **FIG. 3** is a block diagram showing the configuration of station units **11a** through **11l** and a center unit **12** of the game machine **10**.

[0057] In a first embodiment, the number of stations **34a** through **34l** of the game machine **10** is set to **12**, merely as an example. However, the number of stations is not limited to **12**, and any number of stations may be employed, so long as at least two stations are employed.

[0058] As shown in **FIG. 1**, the game machine **10** includes a reel spinning section **33**, the **12** stations **34a** through **34l**, and an overhead section **37**.

[0059] Individual sections of the game machine **10** will be described in detail.

[0060] The reel spinning section **33** has reels **1a** through **1x**; lamps **5**, and a protective glass **36**.

[0061] Each of the reels **1a** through **1x** has a substantially-circular cross-sectional profile and spins around a horizontal shaft while the circular center of the cross-sectional profile is taken as a center. A plurality of types of symbols **4** are drawn on an outer peripheral face **2** of each of the reels **1a** through **1x**. The reels **1a** through **1x** spin in the direction in which the symbols **4** move downward. In other words, as spinning, each of the reels **1a** through **1x** moves the symbols **4** vertically within a display window **3**, thereby variably displaying the symbols **4**.

[0062] As shown in **FIG. 2**, **24** reels; that is, the reels **1a** through **1x**, are arranged in a circular pattern such that the outer peripheral faces **2** of the reels oppose **12** players. Here, the reels **1a** through **1x** are arranged such that three reels are assigned each of the stations **34a** through **34l**.

[0063] In response to a lamp illumination signal output from the center unit **12** shown in **FIG. 3**, lamps **5** are illuminated at the beginning of a game, at the time of a gaming being played, and at the end of the game.

[0064] The protective glass **36** covers a circumferential exterior of the reel spinning section **33**, thereby protecting the reels **1a** through **1x**.

[0065] In this embodiment, **24** reels; that is, the reels **1a** through **1x**, are employed. However, the number of reels is not limited to **24**, and any number of reels may be employed, so long as three or more reels are employed.

[0066] In this embodiment, three reels are assigned to each of the stations **34a** through **34l**. However, the number of reels assigned to each station is not limited to three, and a required number of reels may be disposed. Any number of reels may be provided for each station, so long as one player can view all the reels provided for his station.

[0067] A plurality of speakers **32** are provided on the overhead section **37**. The speakers **32** output sound via a sound circuit **31** in accordance with a sound signal output from the center unit **12** at the beginning of a game, at the time of a gaming being played, and at the end of the game.

[0068] The stations **34a** through **34l** are provided with station units **11a** through **11l** (shown in **FIG. 3**), and each of the stations **34a** through **34l** has a token insert slot **9**, a monitor **6**; button switches **7a**, **7b**, a token payout port **8**, and a speaker **15**.

[0069] The token insert slot **9** receives tokens inserted by the player.

[0070] Displayed on the monitor **6** are information about the number of inserted tokens; information about the symbols **4** to be displayed in the display window **3** during the course of spinning action of each of the reels **1a** through **1x**; information for informing players of prohibition of betting action, and image information performing presentation of games.

[0071] In accordance with pressing action of the player, the button switches **7a**, **7b** output a pressing signal to an input circuit.

[0072] When a win has been determined, tokens for payoff are paid via the token payout port **8**.

[0073] In response to a sound signal output from each of the station units **11a** through **11l**, the speaker **15** outputs sound at the beginning of a game, at the time of a game being played, and at the end of a game.

[0074] Next, the configurations of the respective station units **11a** through **11l** and that of the center unit **12** will now be described by reference to **FIG. 3**.

[0075] The station units **11a** through **11l** and the center unit **12** are connected together via a data bus **16** having a width of 16 bits or 32 bits.

[0076] Each of the station units **11a** through **11l** is constituted of an image circuit **13**, a token sensor **9a**, an input circuit **14**, and a sound circuit **38**.

[0077] Position detection information about the reels **1a** through information about the symbols **4** appearing when the reels **1a** through **1x** are stopped, and image information which provides presentation of games are input to the image circuit **13** from the center unit **12** via the data bus **16**. The image circuit **13** produces an image signal on the basis of these information items, and symbol images of the reels **1a** through **1x** are output to the monitor **6**.

[0078] The token sensor **9a** detects the number of inserted tokens when tokens are inserted and outputs an inserted token count detection signal.

[0079] Input to the input circuit **14** are a press signal output from either of the button switches **7a**, **7b** and an inserted token count detection signal output from the token sensor **9a**. The press signal is output to a CPU **25** via the data bus **16**, and the inserted token count detection signal is output to RAM **21** via the data bus **16**.

[0080] The sound circuit **38** outputs sound data to the speaker **15** after having converted the data into a sound signal.

[0081] The center unit **12** includes a sensor **17**, a CD-ROM (compact disk read-only memory) drive **29**, a hard disk driver **28**, RAM (random access memory) **21**, a switch **35**, an input circuit **19**, an output circuit **20**, reel drive motors **18**, a sound circuit **31**, ROM (read-only memory) **22**, a timer **30**, a random number generator **26**, an image circuit **23**, a maintenance monitor **24**, an advanced technology attachment packet interface circuit (hereinafter simply called an "interface circuit") **27**, and a CPU (central processing unit) **25**.

[0082] The sensor 17 detects information about positions of the reels 1a through 1x when they are spinning and information about positions of the reels 1a through 1x when they are stationary.

[0083] The CD-ROM drive 29 sets image data to be used for performing presentation of a game.

[0084] The hard disk drive 28 sets information about results of games played at the respective stations 34a through 34f.

[0085] The RAM 21 sets information about the number of inserted tokens in response to the inserted token count detection signal and information about the symbols 4 appearing when the reels 1a through 1x have come to a standstill, as well as setting information about the combination of reels and information about winning lines in response to a press signal.

[0086] The switch 35 outputs an operation signal to the input circuit 19 in accordance with operations of an employee.

[0087] The input circuit 19 outputs the information detected by the sensor 17 and the operation signal output from a switch 35 to the CPU 25.

[0088] The output circuit 20 outputs a drive signal and a stop control signal to reel drive motors 18 and outputs a lamp illumination signal to the lamps 5.

[0089] The reel drive motors 18 spin the reels 1a through 1x in accordance with drive signals and perform control operation for stopping the reels 1a through 1x in accordance with stop control signals.

[0090] The sound circuit 31 outputs sound data to the speakers 32 after having converted the data into sound signals.

[0091] The ROM (read-only memory) 22 has a setting table in which are set combinations of symbols 4 to be used for determining wins.

[0092] The timer 30 measures a lapsed time and outputs a predetermined-period-of-time detection signal to the CPU 25 when a lapsed time has exceeded a predetermined period of time (i.e., a bet time).

[0093] The random number generator 26 randomly selects stop positions for the respective reels 1a through 1x by random numbers and determines the thus-selected positions. The random number generator 26 then outputs, to the CPU 25 as stop position information, the stop positions for the respective reels 1a through 1x determined through random selection.

[0094] The image circuit 23 converts the data, which are read by the CPU 25 and set in the hard disk drive 28 and the RAM 21, into an image signal and outputs the signal to the maintenance monitor 24.

[0095] In response to the image signal, the maintenance monitor 24 displays the information set in the hard disk drive 28 or the RAM 21.

[0096] The advanced technology attachment packet interface circuit (hereinafter simply called an "interface circuit")

27 enables entry of image data set on CD-ROM loaded in the CD-ROM drive 29 and entry of game result information set in the hard disk drive 28.

[0097] Here, the CPU 26 performs processing pertaining to the following items (1) through (8).

[0098] (1) Position detection information about the reels 1a through 1x, information about the symbols 4 appearing when the reels 1a through 1x are stopped, and image information to be used for providing presentation of a game are output to the image circuit 13 via the data bus 16, and information about the symbols 4 appearing when the reels 1a through 1x are stopped, is set in the RAM 21.

[0099] (2) Sound data are output to the sound circuits 31, 38.

[0100] (3) A predetermined-period-of-time signal output from the timer 30 is input.

[0101] (4) A drive signal or a stop control signal is output to the output circuit 20 in accordance with the stop position information output from the random number generator 26.

[0102] (5) A lamp illumination signal is output to the lamps 5.

[0103] (6) In response to an operation signal output from the switch 35, the information set in the hard disk drive 28 or the RAM 21 is read via the interface circuit 27, and the thus-read information is output to the image circuit 23.

[0104] (7) Information about a combination of reels and information about a winning line are read from the RAM 21.

[0105] (8) The symbol information set in the RAM 21 is compared with the combination of symbols 4 which determines a win set in the ROM 22, and a determination is made as to whether or not the combination of symbols 4 to be displayed on the reels corresponding to the combination of reels set in the RAM 21 has constituted a winning combination along the winning line.

[0106] The operation of the game machine 10 will now be described by reference to FIGS. 1 through 4. FIG. 4 is a flowchart showing procedures of processing to be executed by the game machine 10.

[0107] First, when power of the game machine 10 is turned on, a system, such as the ROM 22, the RAM 21, and the hard disk drive 28, all being provided in the center unit 12, is inspected.

[0108] Subsequently, the CPU 25 outputs a drive signal to the reel drive motor 18, thereby starting spinning of the reels 1a through 1x. As a result, there is started an operation for displaying the symbols 4 such that the symbols 4 are moved vertically downward within the display window 3.

[0109] Simultaneously, the timer 30 starts measuring a lapsed time. Here, a player P of the station 34a can insert tokens into the token insert slot 9 until the lapsed time reaches a predetermined period of time. Further, the player can select and make effective a desired winning line by actuating the button switches 7a, 7b and bet a desired number of credits on the thus-selected winning line.

[0110] During the course of spinning of the reels 1a through 1x, the sensor 17 sequentially outputs the detected position detection information about the reels 1a through 1x

to the monitor 6, via the data bus 16 and by the CPU 25. Information about the symbols 4 appearing in the display window 3 during the spinning action of the reels 1a through 1x is displayed on the monitor 6 (step 1).

[0111] In step 2, a determination is made as to whether or not a lapsed time has exceeded a predetermined period of bet time.

[0112] When the lapsed time has exceeded a predetermined period of time (when YES is selected in step 2), the timer 30 outputs a predetermined-period-of-time detection signal to the CPU 25, whereby information for informing the player of prohibition of betting action is displayed on the monitor 6. Processing then proceeds to step 3. In contrast, if the lapsed time has not yet exceeded the predetermined period of time (when NO is selected in step 2), processing again returns to step 1.

[0113] Stop positions for the reels 1a through 1x determined by the random number generator 26 are input to the CPU 25 as stop position information. The CPU 25 outputs a stop control signal to the reel drive motor 18, thereby stopping the spinning operations of the reels 1a through 1x and stopping moving display of the symbols 4. Then, the sensor 17 outputs information about the stop positions for the reels 1a through 1x to the CPU 25 via the input circuit 19 (step 3).

[0114] In step 4, the CPU 25 determines whether or not the spinning operations of the reels 1a through 1x have been completed, on the basis of the stop position detection information about the reels 1a through 1x. When the reels 1a through 1x are determined to have finished spinning (when YES is selected in step 4), information about the symbols 4 appearing when the reels 1a through 1x have come to a standstill is set in the RAM 21 by the CPU 25. The CPU 25 outputs the information to the monitor 6 via the data bus 16, and processing proceeds to step 5. In contrast, when the reels 1a through 1x are determined to have not yet finished spinning (when NO is selected in step 4), processing again proceeds to step 3.

[0115] In step 5, the CPU 25 reads a combination of reels 1a through 1x from the RAM 21, and the symbol information set in the RAM 21 is compared with a combination of symbols to be used for determining a win, the combination being set in the ROM 22. As a result, a determination is made as to whether or not a combination of symbols 4 to be displayed on the reels 1a through 1x has constituted a winning combination along a winning line 51. When the combination of symbols 4 is determined to have constituted a winning combination along the winning line 51, tokens for payoff are paid from the token payout port 8 of the station 34a in accordance with the number of bet tokens.

[0116] In step 6, the CPU 25 determines whether or not payout of the tokens has been completed. When payout of the tokens is determined to have been completed (when YES is selected in step 6), processing proceeds to step 7. However, when payout of the tokens is determined to have not yet been completed (when NO is selected in step 6), processing again returns to step 5.

[0117] In step 7, the CPU 25 determines whether or not any station has generated a bonus game, thereby determining whether to perform a bonus game. If a bonus game is determined to be performed (when YES is selected in step

7), processing proceeds to step 8. However, if the bonus game is determined not to be performed (when NO is selected in step 7), processing proceeds to step 9.

[0118] In step 8, a bonus game is executed as a result of the CPU 25 performing processing similar to those pertaining to steps 1, 3, 4, and 5. Predetermined tokens for payoff are paid out from the token payout port 8 of the station of the player P for which a win has been determined.

[0119] In accordance with a press signal output as a result of the player P having pressed the button switch 7a, the CPU 25 determines whether or not the player P continues playing games (step 9). If the player P is determined to continue playing games (when YES is selected in step 9), processing again returns to step 1. In contrast, when the player P is determined not to continue playing games (when NO is selected in step 9), processing to be executed by the game machine 10 is terminated.

[0120] As mentioned above, according to the first embodiment, the game machine includes the plurality of reels 1a through 1x, and the outer peripheral faces 2 are oriented so as to oppose a plurality of players P. . . . Further, the reels 1a through 1x are arranged along a curve or a straight line. Hence, the plurality of players P can simultaneously view the symbols 4 provided on the outer peripheral faces 2 of the respective reels 1a through 1x. Hence, the players can play games in conjunction with each other. As a result, entertainment is afforded to all the players, thereby giving the players an incentive for playing games.

[0121] When tokens are inserted, the token sensor 9a detects the number of inserted tokens. An inserted token count detection signal is output to the monitor 6 via the input circuit 14 and the image circuit 13. Further, the signal is output to the RAM 21 and the ROM 22 via the data bus 16.

[0122] As a result, information about the number of inserted tokens is displayed on the monitor 6 and set in the RAM 21, and information about the winning line 51 is read from the ROM 22.

[0123] By reference to FIG. 5, an example of winning line will be described. FIG. 5 describes an example in which each of the stations 34a through 34f employs three reels, and in which a maximum of eight winning lines can be made effective. In FIG. 5, an explanation is given on the winning line to be afforded to a player of the station 34a. Explanations of winning lines to be afforded to other stations 34b to 34f are omitted.

[0124] The station 34a sets eight winning lines 51 through 58. The button switches 7a, 7b correspond to the winning lines 51 through 58. A desired winning line is selected and made effective by actuating the button switches 7a, 7b, and a desired number of credits can be bet on the thus-selected winning line.

[0125] By reference to FIG. 6, a configuration for establishing winning lines 56 through 58 in the vertical direction will now be described supplementally.

[0126] For convenience of explanation, FIG. 6A shows the annularly-formed reels 1a through 1x which are developed in the form of a plane. In order to establish a combination of symbols 4 along any one of the winning lines 56 through 58 provided in the vertical direction, a plurality of identical symbols 4a through 4c are continuously drawn on

the outer peripheral faces **2a** of the respective reels **1a** through **1x**, as shown in **FIG. 6A**.

[0127] **FIG. 6B** shows modes of stoppage of the reels **1a** through **1x** on which are drawn the symbols **4a** through **4c** shown in **FIG. 6A**. More specifically, there is shown a combination of symbols **4** which are viewed by the player via the display window **3** when the reels have come to a standstill. **FIG. 6B** shows six stopped states **6A** through **6F** of the reels **1a** through **1c** when viewed from left to right. As sight is shifted from **6A** to **6F**, a left reel is stopped while symbols are advanced from those of an adjacent right reel by one.

[0128] When the reels **1a** through **1x** are stopped along a stop position **6D** shown in **FIG. 6B** as a result of random sampling of the random number generator **26**, the symbols **4a** through **4c** are displayed within the display window **3**, thereby constituting a win by the combination of symbols **4a** through **4c** along the vertical winning lines **56** through **58**.

[0129] The foregoing descriptions are described an example in which combinations of three reels are employed. The number of reels to be combined together may be changed by pressing of the button switch **7a**.

[0130] For instance, in the case of description of the station **34a** shown in **FIG. 5**, the number of reels to be combined together is set to three as an initial setting. More specifically, if the player **P** performs no operation, a combination of reels **1a**, **1b**, **1c** is determined.

[0131] When the button switch **7a** is pressed during a period of bet time, the number of reel combinations is increased. Specifically, when the button switch **7a** is pressed once, the reel **1d** situated adjacent to the reel **1c** and the reel **1x** situated adjacent to the reel **1a** are added. The player **P** of the station **34a** can play games by a combination of five reels; that is, the reels **1x** through **1d**, during the course of games. When the button switch **7a** is pressed again, the reels **1e** and **1y** are added to the combination of reels. Then, the player can play games with use of combinations of seven reels; that is, the reels **1y** through **1e**. Any number may be selected for combinations of reels, as required, so long as the reels fall within a view **R** of one player **P**.

[0132] In this example, when the button switch **7a** is pressed three times, processing returns to an initial setting. Specifically, the number of reel combinations can be changed in a cyclical manner from three to five, from five to seven, and from seven to three when the button switch **7a** is pressed successively.

[0133] In accordance with a change in the number of combinations of reels, the length of winning lines in the horizontal direction can also be changed. At that time, in accordance with a change in the number of reel combinations, positions where the winning lines are set and the number of winning lines may also be changed.

[0134] The number of bet tokens to be consumed may be increased with an increase in the number of reel combinations. At that time, the number of winning lines to be set is increased, thereby increasing the number of winning lines which can be made effective. As a result, there is added an entertainment feature of strategically selecting the number of reel combinations on the basis of the player's perception

of occasionally having good luck. Consequently, this can give the player **P** an incentive for increasing the number of tokens to be consumed.

[0135] The press signal is output to the RAM **21** via the input circuit **14** and the data bus **16** in response to the pressing actions of the button switches **7a**, **7b**. As a result, information about combinations of reels is set in the RAM **21**.

[0136] In the first embodiment shown in **FIG. 5**, as mentioned above, the reels are constructed so as to become shared among the player **P** of the station **34a**, a player **P** of the adjacent station **34b**, and a player **P** of another adjacent station **34l**. In the initial setting, the reels **1a** and **1c** are shared reels. As mentioned previously, as a result of pressing of the button switch **7a**, the reels **1d** and **1x** and the reels **1e** and **1y** are added as shared reels.

[0137] As mentioned above, according to the invention, a plurality of reels "a" through "x" are provided. Further, display faces of the reels are oriented so as to oppose a plurality of players. The reels are also arranged along a curve or a straight line. As a result, a reel can be shared among the station **34a** and the adjacent station **34b** or the adjacent station **34l**. Accordingly, shared winning lines can be set between the station **34a** and the adjacent station **34b** or **34l**. In short, the winning lines **56** and **58** shown in **FIG. 5** are the shared lines.

[0138] Consequently, when the player **P** of the station **34a** is betting credits on the winning line **56**, the player **P** of the adjacent station **34b** can also bet credits on the winning line **56** simultaneously. If the symbols **4a**, **4b**, and **4c** are aligned with the shared winning line **56**, both players definitely gain a win.

[0139] Consequently, tokens for payoff are paid out from the token payout port **8** of the station **34a** and that of the station **34b**. As a result, the adjacent players can share the pleasure of a win.

[0140] The player **P** of the station **34a** bets credits on the shared winning line **56**. As a matter of course, the player **P** of the station **34b** may wait for the next chance of betting credits.

[0141] At that time, the player **P** of the station **34b** who has not bet any credits on the shared winning line **56** feels interested in a result of a win afforded to the winning line **56** shared between the player **P** of the adjacent station **34a** and that of the station **34b**. For instance, when a win has arisen in the winning line **56**, the player **P** of the station **34b** who has not bet credits on the shared winning line feels regret. Therefore, the player **P** feels that he has lost a chance. Hence, in order to avoid a regrettable feeling of having lost another chance, the player is motivated to bet credits on as many winning lines as possible; or all winning lines, if possible. Consequently, profits of the game machine are increased.

[0142] By arranging shared reels at positions between adjacent stations, there is achieved another effect for shortening spaces between the stations by amounts corresponding to the shared reels. In view of limitations on the space of an amusement arcade, the size of the game machine cannot be made large indiscriminately. In this respect, shared reels are

arranged effectively, thereby enabling an increase in the number of stations. Thus, profits of the game machine are increased.

[0143] FIG. 7 shows second embodiment of setting of the winning lines. In this embodiment, at least one symbol is shared between the winning line of a player and that of another, adjacent player.

[0144] For instance, as shown in FIG. 7, the player P of the station 34a makes a winning line 90 effective, and the player P of the station 34b makes the winning line 89 effective.

[0145] Since an overlap exists between the winning lines 89 and 90 on the reel 1c, the symbol 4x becomes a shared symbol.

[0146] When the moving display of the symbols 4 is stopped, the symbols 4 provided on the outer peripheral faces 2 of the respective reels 1c through 1e are aligned with the winning line 89, to thereby constitute a predetermined winning combination (i.e., "O" shown in FIG. 7). However, the symbols 4 provided on the outer peripheral faces 2 of the reels 1a through 1c are not aligned with the winning line 89 and fail to constitute a predetermined winning combination.

[0147] In this case, as a matter of course, tokens for payoff are paid to the player P of the station 34b. The symbol 4x ("O" shown in FIG. 7) located at a point on the reel 1c where an overlap exists between the winning lines 89 and 90 is taken as a shared symbol and is set in the ROM 22 beforehand. In step 5 shown in FIG. 4, the CPU 25 compares information about the symbols set in the RAM 21 with the shared symbol 4x set in the ROM 22, to thereby determine occurrence of a match therebetween. A certain amount of tokens for payoff are also paid to the player P of the station 34a.

[0148] As a result, the player observes a winning line which has been made effective by another adjacent player and considers setting of a winning line in consideration of the shared symbol corresponding to the winning line. Players become able to enjoy playing games according to a strategy.

[0149] In the above descriptions, a plurality of reels are provided, and display faces of the reels are arranged so as to oppose a plurality of players. Further, the reels are arranged along a curve or a straight line. In addition, shared reels are also provided. As a result, the player P shares a game space with adjacent players P. Thus, an entertainment feature of sharing games is realized.

[0150] Realization of shared winning lines can be made possible without use of the previously-stated shared reels.

[0151] A third embodiment in which winning lines are shared without use of shared reels will be described hereinafter by reference to FIGS. 8A and 8B.

[0152] In this embodiment, a total of 24 reels are provided, as in the case of the previous embodiment. Display faces of the reels 1a through 1x are arranged so as to oppose a plurality of players and are arranged along a curve or straight line.

[0153] In this embodiment, reels provided for the respective stations 34a through 34h are not provided with reels to be shared between adjacent stations. Therefore, a total of eight stations are provided.

[0154] With a view toward describing a relationship between reels and winning lines, FIGS. 8A and 8B illustrate the reels 1a through 1x to be provided for the station 34a and the stations 34b and 34h provided on the respective sides thereof. More specifically, a total of nine reels are illustrated; that is, the reels 1f, 1e, 1d, . . . 1x, 1w, and 1v, when viewed from left to right.

[0155] FIGS. 8A and 8B are drawings showing, in an easily understandable manner for the sake of convenience, independent winning lines and winning lines to be shared.

[0156] FIG. 8A illustrates only independent winning lines. FIG. 8B illustrates only winning lines to be shared. These drawings are prepared separately for the sake of convenience of comprehension. Independent winning lines and winning lines to be shared are not separate from each other but are combined together in the game machine.

[0157] As mentioned above, FIG. 8A shows independent winning lines. In the third embodiment, five independent winning lines are set for each of the stations. More specifically, an explanation is given of the station 34a, and three horizontally-extending winning lines 80a, 80b, and 80c and the obliquely-extending winning lines 80d and 80e constitute five independent winning lines.

[0158] The player P makes effective one or more arbitrary winning lines from among the winning lines 80a through 80e, by betting credits on the winning line through pressing of the button switch 7a. Moreover, the player P can set an arbitrary number of credits on the winning line(s) thus made effective, by pressing the button switch 7a.

[0159] In the third embodiment, the player P can bet credits on a shared winning line other than an independent winning line.

[0160] FIG. 8B shows shared winning lines in the manner mentioned above. In the third embodiment, five shared winning lines are set between adjacent stations 34.

[0161] Shared winning lines will be described by reference to the shared winning lines 80f through 80j set between the stations 34a and 34b.

[0162] FIG. 8B illustrates shared winning lines 80f through 80j existing between the stations 34a and 34b. The shared winning lines 80f, 80g, and 80h are horizontally-extending straight lines. More specifically, the shared winning line 80f interconnects upper symbols 4 from among symbols 4 drawn on the four reels 1e, 1d, 1c, and 1b, in the form of a horizontally-extending straight, continuous line. The shared winning line 80g interconnects middle symbols 4 from among symbols 4 drawn on the four reels 1e, 1d, 1c, and 1b, in the form of a horizontally-extending straight, continuous line. Further, the shared winning line 80h interconnects lower symbols 4 from among symbols 4 drawn on the four reels 1e, 1d, 1c, and 1b, in the form of a horizontally-extending straight, continuous line.

[0163] The shared winning lines 80i, 80j are horizontally-oriented lines, as in the case of the shared winning lines 80f through 80j. However, portions of the shared winning lines 80i, 80j are bent. More specifically, the shared winning line 80i is a winning line that interconnects the upper symbol 4 provided on the reel 1e, the middle symbols 4 provided on the reels 1d, 1c, and the upper symbol provided on the reel 1b. Moreover, the shared winning line 80j is a winning line

for interconnecting the lower symbol 4 provided on the reel 1e, the middle symbols 4 provided on the reels 1d, 1c, and the lower symbol 4 provided on the reel 1b.

[0164] The player P of the station 34a and the player P of the station 34b can bet credits on the shared winning lines 80f through 80j. More specifically, the player P of the station 34a and the player P of the station 34b can also make effective one or more arbitrary winning lines of the winning lines 80f through 80j, by pressing the button switch 7a. Similarly, the player P can bet an arbitrary number of credits on the winning line(s) having been made effective, by pressing the button switch 7a.

[0165] For instance, the players P of the stations 34a and 34b are assumed to make the shared winning line 80f effective by betting credits on the line through pressing of the button switch 7a. Then, set in the RAM 21 are data representing that the players P of the stations 34a and 34b have bet credits on the shared winning line 80f.

[0166] When the moving display of the symbols 4 is stopped, the symbols 4 provided on the outer peripheral faces 2 of the reels 1b through 1e are aligned with the shared winning line 80f, thereby constituting a predetermined winning combination of symbols. The CPU 25 compares the symbol information set in the RAM 21 with a combination of symbols 4 which determines a win set in the ROM 22, thereby determining that a predetermined winning combination of symbols has been constituted along the winning line 80f (step 5 shown in FIG. 4). As a result, tokens for payout are paid from the token payout ports 8 of the respective stations 34a, 34b. Consequently, adjacent players can share the pleasure of a win.

[0167] In the embodiment, three symbols 4 attached to the outer peripheral faces 2 of the respective reels 1a through 1x are displayed within the display window 3. However, the number of symbols to be displayed is not limited to three; a desired number of symbols may be displayed. The player P can easily view processes during which a winning combination of symbols is constituted, by displaying a larger number of symbols 4 within the display window 3, thereby affording the player p an expectation for determination of a win or tension.

[0168] In the embodiment, the reels 1a through 1x are arranged in a circular pattern. However, the shape of the reels is not limited to a circular pattern. In the invention, as shown in FIG. 9, a plurality of reels 1' . . . may be arranged along a curve L2 or a straight line L1.

[0169] As shown in FIG. 10, according to the invention, a plurality of reels 1" . . . may be arranged along a substantially-closed curved line W' consisting of straight lines and curves.

[0170] In the embodiment, the reels 1a through 1x are used. However, belts may also be employed. Use of belts enables a reduction in the depth of the reels 1a through 1x. Hence, belts larger in number than the reels 1a through 1x may be arranged. Further, the belts have smaller inertial masses, and hence the braking characteristic of the display is improved accordingly.

[0171] As shown in FIG. 11, in the embodiment, 24 reels 1a' through 1x' may also be provided below and in parallel with the reels 1a through 1x. Specifically, according to the

invention, a plurality of reels may be vertically provided in two or more layers. As a result, complicated combinations of symbols 4 are achieved, thereby improving the entertainment nature of games to a much greater extent.

[0172] The embodiments have described on the assumption that the reels 1a through 1x have mechanical constructions. However, the reels are not limited to the mechanical construction. There can also be included dummy reels which are constituted by displaying symbols made of computer-graphic (CG) images on an image display device, such as those listed below.

[0173] Examples of the image display device can include, e.g., a liquid-crystal display, a CRT (cathode-ray tube), and a display device, such as a DLP (digital light processing) projector using an image display element DMD (digital mirror device). Symbols based on CG images are cyclically displayed in a vertical direction on the image display device, thereby constructing the dummy reels on the image display device.

[0174] In the embodiment, the reels 1a through 1x are spun, respectively, thereby displaying the symbols 4 in a manner sequentially moving vertically. However, the symbols 4 may also be displayed so as to move in oblique direction.

[0175] For instance, in a case where liquid-crystal displays 201 through 221 shown in FIG. 12 are used in place of reels, symbol images 4' appearing on the display screen 2' of the liquid-crystal displays 201 through 221 are displayed so as to sequentially move in the directions of arrows shown in FIG. 12.

[0176] When the symbol images 4' are displayed so as to move sequentially in oblique direction, players can view the symbol images 4' as if displayed helically. Hence, an attraction of visual games can be afforded to a player.

What is claimed is:

1. A game machine comprising;

a plurality of displays, each displaying at least one reel bearing series of symbols, and

wherein the displays are arranged along a closed circuit so that display faces are opposed to a plurality of players.

2. The game machine as set forth in claim 1, further comprising a number of series symbol combination selector, which changes a number of reels on the game machine in accordance with a player's operation.

3. A game machine comprising;

a first display, which displays at least one reel bearing series of symbols; and

a second display, which displays at least one reel bearing series of symbols, and

wherein the first display is also provided as a shared display for using together with the second display.

4. The game machine as set forth in claim 3, wherein the reel in the shared display bears series same symbols; and

wherein a winning line extends along the reel in the shared display.

5. The game machine as set forth in claim 3, wherein a winning line extends through from the reel in the first display as the shared display to the reel in the second display.

6. The game machine as set forth in claim 3, wherein both a first winning line for the first display and a second winning line for the second display extend through a symbol on the shared display.

7. The game machine as set forth in claim 3, wherein the first display and the second display are arranged along a closed circuit so that the display faces of the first display and the second display are opposed to a plurality of players.

8. A game machine comprising;

a plurality of display, each displaying at least one reel bearing series of symbols, and

wherein the winning line extends through at least two of the plurality of displays.

9. The game machine as set forth in claim 1, wherein at least two displays are provided in the game machine in a vertical direction.

10. The game machine as set forth in claim 3, wherein at least two set of displays same as a set of the first display and the second display are provided in the game machine in a vertical direction.

11. The game machine as set forth in claim 1, wherein the series of symbols in the displays move in an oblique direction.

12. The game machine as set forth in claim 3, wherein the series of symbols in the first and the second displays move in an oblique direction.

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