A processor controlled slot machine having a plurality of reels, each of which display a plurality of symbols on a display device. The slot machine provides a plurality of paylines although the slot machine may be adapted to be a single payline machine. The machines may have blanks or ghost symbols. When the player spins the reels, a plurality of symbols stop on the paystops of the display device. The game pays the player for any wins due to the initial spin. If a nudge activator occurs, and the player has accumulated a nudge or the nudge activator itself causes the nudge sequence, the game performs at least one nudge sequence, which at least moves one reel one paystop position. When the nudge sequence stops, slot machine pays the player again for any winning combinations that exist.
FIG. 1A
FIG. 3

100

102

RECEIVE MONETARY INPUT FROM PLAYER

104

ENABLE REEL SPIN

106

AFTER PLAYER PRESSES PLAY BUTTON (PULLS ARM) SPIN THE REELS AND DISPLAY FIRST SET OF SYMBOLS

108

PROVIDE PAYOUT (IF ANY) FROM REEL SPIN

110

IS THERE A NUDGE ACTIVATOR?

112

DISPLAY FIRST NUDGE SEQUENCE (POSSIBLY ACCUMULATE NUDGE(S))

114

PROVIDE PAYOUT (IF ANY) WHEN NUDGE SEQUENCE IS COMPLETE

116

IS THERE ANOTHER NUDGE SEQUENCE?

118

DISPLAY NEXT NUDGE SEQUENCE (POSSIBLY ACCUMULATE NUDGE(S))
GAMING DEVICE HAVING MULTI-PAYLINE NUDGE REELS

CROSS REFERENCE TO RELATED APPLICATIONS


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DESCRIPTION

[0003] The present invention relates in general to a gaming device, and more particularly to a gaming device having multi-payline nudge reels.

BACKGROUND OF THE INVENTION

[0004] Gaming device manufacturers have long provided gaming machines employing a plurality of reels, wherein the reels each have a plurality of symbols. In these games, the player “spins” a number of reels that act independently to produce a random generation of a combination of symbols. If the generated combination, or a portion of the combination, such as the symbols along one or more paylines associated with the reels, matches one of a number of predetermined award producing or winning combinations, the player receives an award.

[0005] To increase player enjoyment and excitement, and to increase the popularity of the gaming machines, gaming device manufacturers constantly strive to provide players with new types of gaming machines that attract the player and keep the player entertained. One way manufacturers use to make their machines more popular is to increase the number and variety of award opportunities.

[0006] One popular game feature that increases the player’s award opportunities is commonly referred to as a “nudge” feature or option. A nudge occurs after the reels initially spin and stop. There are a variety of different nudge games.

[0007] In a player skill type of nudge game, when the reels stop, the player has an option to “nudge” one of the reels by indexing the reel up or down one or more positions in an attempt to achieve a winning combination, usually along a payline associated with the reels. In some cases, the player has a number of nudges or a nudge bank from which the player uses the nudges as desired. In stepper or mechanical slot machines, the player can usually see through the glass panel display device and normally sees three positions on each reel strip. On a single payline machine this includes the payline position on each reel and the positions immediately above and immediately below the payline position. The player can therefore see when one of the reels should be nudged. It is also known to display, usually next to the reels, a map of the reel strips that enables the player to determine the reel strip symbols.

[0008] This type of nudge game involves a level of skill because the player may not nudge a reel to create a new winning combination or may also nudge a winning combination off the payline. The skill nudge game is not allowed in many gaming jurisdictions in the United States, but is very popular in Europe and especially in England.

[0009] In an auto-response type of nudge game, the gaming machine automatically nudges one or more reels when a certain event occurs. The auto-response can be implemented in a variety of ways. In most instances, the auto-nudge employs a blank or ghost symbol. The blank or ghost symbol is a non-symbol, which is normally not part of any winning combination of the game’s paytable. Therefore, nudging a blank off of a payline generally cannot hurt a player, i.e., remove a winning combination from the payline (except in games such as where these blanks provide an award).

[0010] In one known auto-nudge method, the game contains one or more “nudge symbols” that have a reel strip location next to a symbol stock blank or between two blanks. Depending on the precise nudge symbol /blank juxtaposition, the nudge symbol may move (move) up or down. If the nudge symbol is between two blanks, the symbol may nudge up or down. Normally, games having this auto-nudge method provide a nudge display or nudge help screen to inform the player.

[0011] In another known auto-nudge method, the game does not specify any particular symbol as a nudge symbol; but rather, the game ties the nudge to the ghost symbol or blank. When the game generates a blank on a payline, the game randomly decides whether or not to nudge and if a nudge is generated, the game also randomly generates whether to nudge up or down. The game makes the random decisions independent of the symbols that are eventually nudged. The game designer can place any suitable number of blanks on the reel strips as desired and control the overall payout percentage by randomly generating the nudge a predetermined percentage of the time.

[0012] At least one known nudge game provides nudges until the player obtains a winning combination. That is, if the first nudge does not generate a win for the player, the game moves another symbol in place of the originally nudged symbol and a new symbol combination is evaluated for a player win. This process is repeated until the player obtains a winning combination.

[0013] Nudging has become a popular feature on single payline games that have blanks or ghost symbols. If the game does not have blank or ghost symbols, however, the nudge can undo a winning combination by removing a symbol, necessary to the winning combination, from the payline. The game designer could place a symbol that does not form a part of any winning combination next to the...
nudge symbol, however, symbols on the reels that do not form part of any winning combination tend to confuse the players. It is therefore desirable not to display a symbol that effectively operates as a blank or ghost symbol.

[0014] Another proven way game manufacturers have employed to make their machines more popular has also been to increase the number paylines from one to many, such as, three, five, nine, ten, fifteen or twenty-five. Multi-payline games, however, do not cooperate well with nudge games because the multi-payline games use the rows of symbols on the display device above and below an interior payline. Therefore, nudging a symbol, which may cause a winning symbol combination to occur on one payline, can also undo an existing winning combination on one or more other paylines. If a nudge results in lowering the player’s award, the player is not happy and the purpose of the nudge is undermined.

SUMMARY OF THE INVENTION

[0015] The present invention provides a processor controlled slot machine gaming device having a plurality of reels, each of which have or display a plurality of symbols on a display device having a plurality of paystops or symbol stops. The gaming device preferably provides a plurality of paylines although the gaming device may be adapted to be a single payline machine. Either the single or multiple payline machines of the present invention can, but are not required to have, blanks or ghost symbols. When the player spins the reels, a plurality of symbols stop in the paystops of the display device. The game pays the player for any wins due to the initial spin. If a nudge activator occurs, the game performs at least one nudge sequence, which at least moves one reel one paystop position. When the nudge sequence stops, the gaming device pays the player again for any winning combinations that exist.

[0016] The reels of the slot machine in one embodiment provide the nudge activator. In alternative embodiments, other random events besides spinning the reels can provide the nudge activator. The nudge activator initiates the nudge sequence. The occurrence of the nudge activator may be visible to the player (such as a reel symbol) or invisible to the player (such as based on a separate random generation). In one embodiment, the occurrence of the nudge activator automatically executes the nudge. In another embodiment, a separate “nudge incrementor” event, such as a symbol or combination of same appearing on the reels, provides the player with a nudge, wherein the player activates the nudge to initiate the nudge sequence. A nudge display is also provided in an embodiment to count down any accrued nudges to zero.

[0017] A single nudge or a plurality of nudges may be provided to the player either via a nudge incrementor or some other game event. When the player accrues multiple nudges, the nudge activator initiates only one nudge sequence in one embodiment, multiple nudge sequences in another embodiment and all accrued nudge sequences in a further embodiment. If the nudge incrementor or other game event that provides the nudges is a symbol or symbol combination on the slot reels, a nudge sequence may regenerate one or more additional nudges.

[0018] The gaming device includes a variety of different nudge sequences and may be adapted to display only one of the sequences or vary the types of sequences on a predetermined or random basis. In general, the nudge sequences differ in terms of which reels move, how many reels move, the direction that one or more reels moves and how many paystops that one or more of the reels moves.

[0019] Each time a nudge sequence or reel move occurs, a new combination of symbols occurs on at least one payline. The gaming device of the present invention pays the player for winning symbols or combinations on active paylines before and after the nudge sequence. It is possible that the same winning symbol or combination moves from one active payline to the next due to the nudge sequence. In this case, the game: (i) only pays the player one time for the same combination; (ii) pays the player a second time if the symbols actually move, i.e., does not pay if the winning combination does not move and remains on an active payline; or (iii) pays the player a second time regardless.

[0020] It is therefore an advantage of the present invention to provide a gaming device that has a nudge sequence which does not have blanks or ghost symbols.

[0021] Another advantage of the present invention is to provide a multi-payline gaming device that has a nudge sequence.

[0022] A further advantage of the present invention is to provide a multi-payline gaming device that has a nudge sequence and does not have blanks or ghost symbols.

[0023] Yet another advantage of the present invention is to provide a variety of different nudge arrangements.

[0024] Other objects, features and advantages of the invention will be apparent from the following detailed disclosure, taken in conjunction with the accompanying sheets of drawings, wherein like numerals refer to like parts, elements, components, steps and processes.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] FIGS. 1A and 1B are perspective views of alternative embodiments of the gaming device of the present invention.

[0026] FIG. 2 is a schematic block diagram of the electronic configuration of one embodiment of the gaming device of the present invention.

[0027] FIG. 3 is a process flow diagram illustrating different embodiments of the nudge payout method of the present invention.

[0028] FIGS. 4A and 4B are elevation views of one of the display devices illustrated in FIGS. 1A and 1B, which illustrate a single payline embodiment of the present invention.

[0029] FIGS. 5A and 5B are elevation views of one of the display devices illustrated in FIGS. 1A and 1B, which illustrate a multi-payline embodiment of the present invention.

[0030] FIGS. 6A and 6B are elevation views of one of the display devices illustrated in FIGS. 1A and 1B, which illustrate another multi-payline embodiment of the present invention having one or more blank or ghost symbols.

DETAILED DESCRIPTION OF THE INVENTION

Gaming Device and Electronics

[0031] Referring now to the drawings, and in particular to FIGS. 1A and 1B, gaming device 10a and gaming device
illustrate two possible cabinet styles and display arrangements and are collectively referred to herein as gaming device 10. Gaming device 10 has the controls, displays and features of a conventional slot machine, wherein the player operates the gaming device while standing or sitting. Gaming device 10 in different embodiments is a sub-style or table-top game (not shown), which a player usually operates while sitting.

[0032] The symbols and indicia used for the slot base game or any of its bonus games include mechanical, electronic, or video symbols and indicia. Gaming device 10 includes monetary input devices. FIGS. 1A and 1B illustrate a coin slot 12 for coins or tokens and/or a payment acceptor 14 for cash money. The payment acceptor 14 also includes other devices for accepting payment, such as readers or validators for credit cards, debit cards or smart cards, tickets, notes, etc. When a player inserts money in gaming device 10, a number of credits corresponding to the amount deposited is shown in a credit display 16. After depositing the appropriate amount of money, a player can begin the game by pulling arm 18 or pushing play button 20. Play button 20 can be any play activator used by the player which starts any game or sequence of events in the gaming device.

[0033] As shown in FIGS. 1A and 1B, gaming device 10 also includes a bet display 22 and a bet one button 24. The player places a bet by pushing the bet one button 24. The player can increase the bet by one credit each time the player pushes the bet one button 24. When the player pushes the bet one button 24, the number of credits shown in the credit display 16 decreases by one, and the number of credits shown in the bet display 22 increases by one. A player may cash out by pushing a cash out button 26 to receive coins or tokens in the coin payout tray 28 or other forms of payment, such as an amount printed on a ticket or credited to a credit card, debit card or smart card. Well known ticket printing and card reading machines (not illustrated) are commercially available.

[0034] Gaming device 10 may also include one or more display devices. The embodiment shown in FIG. 1A includes a central display device 30, and the alternative embodiment shown in FIG. 1B includes a central display device 30 as well as an upper display device 32. The display devices display any visual representation or exhibition, including but not limited to movement of physical objects such as mechanical reels and wheels, dynamic lighting and video images. The display devices 30 or 32 include any viewing surface such as glass, a video monitor or screen, a liquid crystal display or any other static or dynamic display mechanism.

[0035] The gaming device 10 of the present invention displays a plurality of reels 34, preferably three to five reels 34 in mechanical or video form, on one or more of the display devices. Each reel 34 displays a plurality of indicia such as bells, hearts, fruits, numbers, letters, bars or other images that preferably correspond to a theme associated with the gaming device 10. If the reels 34 are in video form, the display device displaying the video reels 34 is preferably a video monitor. Gaming device 10 also includes speakers 36 for making sounds or playing music.

[0036] Referring now to FIG. 2, a general electronic configuration of the gaming device 10 for the stand alone and bonus embodiments described above preferably includes: a processor 38, a memory device 40 for storing program code or other data; a central display device 30; an upper display device 32; a sound card 42, a plurality of speakers 36; and one or more input devices 44. The processor 38 is preferably a microprocessor or microcontroller-based platform which is capable of displaying images, symbols and other indicia such as images of people, characters, places, things and faces of cards. The memory device 40 includes random access memory (RAM) 46 for storing event data or other data generated or used during a particular game. The memory device 40 also includes read only memory (ROM) 48 for storing program code, which controls the gaming device 10 so that it plays a particular game in accordance with applicable game rules and pay tables.

[0037] As illustrated in FIG. 2, the player preferably uses the input devices 44 to input signals into gaming device 10. In the slot machine base game, the input devices 44 include the pull arm 18, play button 20, the bet one button 24 and the cash out button 26. A touch screen 50 and touch screen controller 52 are connected to a video controller 54 and processor 38. The terms “computer” or “controller” are used herein to refer collectively to the processor 38, the memory device 40, the sound card 42, the touch screen controller and the video controller 54.

[0038] In certain instances, it is preferable to use a touch screen 50 and an associated touch screen controller 52 instead of a conventional video monitor display device. The touch screen enables a player to input decisions into the gaming device 10 by sending a discrete signal based on the area of the touch screen 50 that the player touches or presses. As further illustrated in FIG. 2, the processor 38 connects to the coin slot 12 or payment acceptor 14, whereby the processor 38 preferably resides in each gaming device 10 unit, the present invention includes providing some or all of their functions at a central location such as a network server for communication to a playing station such as over a local area network (LAN), wide area network (WAN), Internet connection, microwave link, and the like.

[0039] It should be appreciated that although a processor 38 and memory device 40 are preferable implementations of the present invention, the present invention also includes being implemented via one or more application-specific integrated circuits (ASIC’s), one or more hard-wired devices, or one or more mechanical devices (collectively and individually referred to herein as a “processor”). Furthermore, although the processor 38 and memory device 40 preferably reside in each gaming device 10 unit, the present invention includes providing some or all of their functions at a central location such as a network server for communication to a playing station such as over a local area network (LAN), wide area network (WAN), Internet connection, microwave link, and the like.

[0040] To operate the gaming device 10 as illustrated by FIGS. 1A and 1B, the player inserts the appropriate amount of tokens or money in the coin slot 12 or the payment acceptor 14 and then pulls the arm 18 or pushes the play button 20. The reels 34 then begin to spin. Eventually, the reels 34 come to a stop. As long as the player has credits remaining, the player can spin the reels 34 again. Depending upon where the reels 34 stop, the player may or may not win additional credits.

[0041] In addition to winning credits from the slot game, gaming device 10 in one embodiment may also include one or more bonus games that give players the opportunity to win credits. The gaming device 10 may employ a video-
based display device 30 or 32 for the bonus games. The bonus games include a program that automatically begins when the player achieves a qualifying condition in the base game.

[0042] The qualifying condition includes a particular symbol or symbol combination generated on a display device. As illustrated in the five reel slot game shown in FIGS. 1A and 1B, one qualifying condition includes the number seven appearing on, e.g., three adjacent reels 34 along a payline 56. It should be appreciated that the present invention includes one or more paylines, such as payline 56, wherein the paylines can be horizontal, diagonal or any combination thereof. An alternative scatter pay qualifying condition may include the number seven appearing on, e.g., three adjacent reels 34 but not necessarily along a payline 56, appearing on any different set of reels 34 three times or appearing anywhere on the display device the necessary number of times.

Multi-Payline Nudge Reels

[0043] Referring now to FIG. 3, one method 100 for operating the nudge game of the present invention is illustrated. When gaming device 10 receives the appropriate monetary input from the player, as indicated above and by block 102, the game enables the player to spin the reels 30 (FIGS. 1A and 1B), as indicated by block 104. After the player presses the play button 20 or pulls the pull arm 18, the reels 34 spin and stop one of the display devices 30 or 32 and display a first set of symbols to the player, as indicated by block 106.

[0044] The processor provides a first payout to the player for any winning symbol or symbol combination that appears along any payline 56 that the player has wagered, as indicated by block 108. The method 100 applies to single or multiple payline games. The method 100 also applies whether or not the reels 34 include blanks or ghost symbols.

[0045] The processor determines whether a nudge activator exists or has occurred, as indicated by diamond 110. The occurrence of a nudge activator in one embodiment is transparent to the player. For example, in one embodiment, the processor performs a random generation separate from the reel spins to determine when a nudge activator occurs. This random generation in one implementation is weighted according to the player’s bet, e.g., when the player bets more, the nudge activator is more likely to occur. The random generation in another implementation is weighted so that the longer play continues without the occurrence of a nudge activator, the more likely its occurrence becomes. It should be appreciated that any suitable method for determining whether a nudge activator is present may be employed.

[0046] The occurrence of a nudge activator in other embodiments is visible to the player. For example, in one embodiment, a particular symbol or symbol combination on the reels 34 is the nudge activator. In one implementation of this embodiment, the symbol or symbol combination must occur on a payline 56 that the player has wagered. In another implementation, the symbol or symbol combination appearing anywhere on the reels 34 is sufficient.

[0047] Gaming device 10 in another embodiment does not use the reel symbols and employs the upper display device 32 (if the central display device 30 displays the reels 34) or a separate display device, such as a wheel (not shown), to display the random occurrence of a nudge activator for each spin of the reels. In either embodiment, a display for the nudge activator may be adapted to display any one or combination of the following: (i) a preferably enjoyable and exciting sequence informing the player that the nudge activator has occurred; (ii) a display of one or more nudges that the game provides to the player; and (iii) a counter that counts down from the number of nudges acquired to zero nudges as the nudge sequences take place.

[0048] If after spinning the reels as indicated in block 106 and providing an associated award as indicated by block 108, the gaming device 10 determines that a nudge activator has occurred as indicated by block 110, a first nudge sequence is displayed, as indicated by block 112. In one embodiment, the nudge activator, at the very least, initiates one nudge sequence.

[0049] The nudge activator in one embodiment also provides or enables the nudge and thereby immediately initiates the corresponding nudge sequence. In another embodiment, the nudge activator provides a plurality of nudges and thereby initiates multiple nudge sequences for the multiple provided nudges.

[0050] In a further embodiment, a nudge incrementor, such as a different reel symbol or combination, provides or increments one or more nudges, wherein the activator activates the nudge, that is, initiates the nudge sequence or move. Here, it is possible that the player can accumulate multiple nudges. The nudge incrementor can provide one or multiple of nudges. Gaming device 10 can also generate multiple incrementors, thereby accumulating multiple nudges, before generating a nudge activator. A generated nudge activator can activate multiple nudges, as long as the player has accumulated multiple nudges. At the same time, a generated nudge activator may not activate a nudge if the player has not accumulated at least one nudge. The accumulation of nudges can occur during a single game or a series of games.

[0051] In yet another embodiment, when gaming device 10 generates a nudge activator, gaming device 10 saves the activator or maintains its activation, when the player has not accumulated a nudge, until the player accumulates the nudge with a nudge incrementor. This embodiment makes gaming device 10 more exciting because the accumulation of nudges indicates that there will be a nudge in a subsequent game and possibly an award therefrom.

[0052] The nudge sequences can be implemented in many different ways. Several different nudge sequence implementations are illustrated below. In each nudge sequence, whether gaming device 10 includes a single or a plurality of paylines 56 (FIGS. 1A and 1B), at least one reel 34 shifts at least one position up or one position down. Unless the same symbol removed from the payline 56 is shifted onto the payline 56, the reel shift creates a new combination of symbols along at least one payline 56. If the reels 34 of the gaming device 10 include blanks or ghost symbols, the nudge can result in one or more additional combinations and also result in removing one or more combinations.

[0053] The game provides a second payout to the player for any winning symbol or symbol combination that appears along any payline 56 that the player has wagered, as
indicated by block 114. As described above, in one embodiment, obtaining the nudge activator as indicated by block 110 may provide the player with one or more nudges.

[0054] In one embodiment, gaming device 10 performs only a single nudge sequence when the player achieves a nudge activator even if the nudge activator provides, or the player has already obtained, multiple nudge sequences. That is, after providing the second payout as indicated by block 114, the game does not perform another nudge sequence, as determined in connection with diamond 116. In this case, gaming device 10 enables another reel spin as indicated by block 104 as long as the player has maintained the appropriate monetary input as indicated by block 102. If the nudge activator, or another gaming device 10 event, has provided more than one nudge as indicated by block 110, the leftover nudges remain and the player must obtain other nudge activators to use them, i.e., one at a time.

[0055] In another embodiment, if the nudge activator provides, or the player has already obtained, multiple nudge sequences, gaming device 10 performs multiple nudge sequences until all nudges are exhausted. That is, after providing the second payout as indicated by block 114, there is another nudge sequence as long as the player has a remaining nudge, as determined in connection with diamond 116. The game displays the next nudge sequence, which may again be one of many types of sequences, as indicated by the block 118, and which results in one or more new symbol combinations on at least one payline. The game thereafter provides another payout to the player for any winning symbol or symbol combination that appears along any payline 56 that the player has wagered, as indicated by block 114. This process repeats until all acquired nudges are exhausted. In a further embodiment (not illustrated), the game may limit consecutive nudge sequences to a pre-defined or randomly determined number.

[0056] As indicated by blocks 112 and 118, the player can accumulate nudges. This can be done in various ways. First, the nudge activator may also act as a nudge incrementer and provide one or more nudges to the player. Second, a separate “nudge incrementor” symbol or symbol combination of the reels 34 may also be generated that provides a nudge or nudges to the player. Here the player also needs to generate a nudge activator to activate one or more of the accrued nudges. Third, a bonus game or the player’s wager, such as the paylines played, wager per payline or total bet can generate or effect the probability of obtaining and accumulating a nudge.

[0057] Either the nudge incrementor or nudge activator can be a symbol on one of the reels 34 or part of one of the symbols on a reel. The nudge symbol also could be a wild symbol that acts as both an incrementor (providing a nudge) and an activator (executing the nudge). Whenever the wild nudge symbol appears, such as a “Double Diamond” symbol, the reel displaying the “Double Diamond” nudges up or down one or more predetermined or randomly determined positions. The “Double Diamond” symbols can but do not have to be placed adjacent to one or more ghost symbols.

[0058] In another embodiment, nudge indicia is provided in combination with an existing symbol to create a nudge sub-symbol. For example, gaming device 10 can have one or more reels with cherry symbols and cherry symbols additionally provided with the word “nudge”. This combination symbol operates with gaming device 10 so that any pays created by the cherry symbol alone are made, whereas, the reel displaying the cherry-nudge symbol nudges or shifts one or more spots up or down randomly or in a predetermined manner.

[0059] In another embodiment, the nudge sequence is capable of generating an additional nudge incrementor or a self-starting nudge activator. The additional nudge or nudges may be generated and provided regardless of whether gaming device 10 performs one nudge sequence per nudge activator or exhausts all the player’s nudge sequences upon the generation of a nudge activator. Gaming device 10 may iterate through many nudge sequences, as some of the sequences generate and add back to the nudge count, before the player's nudges become exhausted. In each sequence, gaming device 10 pays out for any winning symbol or symbol combination that results.

[0060] In still a further embodiment, gaming device 10 provides an electromechanical or simulated input device 44 that enables the player to selectively choose when to use a nudge. For example, gaming device 10 can provide a “nudge row” button or input that operates with the touch screen 50 and touch screen controller 52 associated with one of the display devices 30 or 32 to enable the player to choose selectively when to use a nudge. This embodiment may require player skill to use nudges wisely, nevertheless, certain gaming jurisdictions allow and indeed require some level of player skill.

[0061] Referring now to FIGS. 4A and 4B, 5A and 5B and 6A and 6B, several embodiments of the nudge sequence are illustrated. FIGS. 4A and 4B illustrate a single payline 56 embodiment. That is, even though the display device 30 or 32 displays three rows of symbols for the reels 34a through 34c, the player can only wager the single payline 56, which is the middle row. Accordingly, the player can only win along the single row or payline 56.

[0062] If “diamond, 7, 7” and “7, 7, 7” are winning combinations, the player currently has a “diamond, 7, 7” win along the payline 56 in FIG. 4A. If the nudge sequence moves the leftmost reel 34a up one position so that the top row of paystops of the display device 30 or 32 displays the “diamond” symbol and the middle row of paystops displays the 7 symbol, as indicated in FIG. 4B, the known nudge presents a dilemma for the player. That is, the player gains the “7, 7, 7” win of FIG. 4B but loses the “diamond, 7, 7” win of FIG. 4A (where such combination provides a win according to the pay table of the game). This may or may not result in a net gain for the player. Moreover, if the nudge does not result in the “7, 7, 7” win shown in FIG. 4B, the player loses the “diamond, 7, 7” win without any compensation. Nudging wins off a payline will not likely make the game very popular.

[0063] In the present invention, however, gaming device 10 provides both wins for the player because the game pays out before and after the nudge. That is, gaming device 10 pays out all wins appearing on the payline 56 when the reels 34 come to rest in the position shown in FIG. 4A. The game performs the nudge sequence and then pays out all wins appearing on the payline 56 when the reels come to rest in the position shown in FIG. 4B. The game therefore pays the “diamond, 7, 7” win in FIG. 4A before the nudge sequence and the “7, 7, 7” win in FIG. 4B after the nudge sequence.
FIGS. 5A and 5B illustrate a multiple payline embodiment. Here, for example, the player can wager and win on one payline 56a, two paylines 56a and 56b, or three paylines 56a through 56c. The display device 30 or 32 includes fifteen different paystops, which are an array of symbols of the glass defined by the reels 34a through 34c and the paylines 56a through 56c. Thus, the paystop 56a, 34a or the display device 30 or 32 contains the "diamond" symbol in FIG. 5A before the nudge sequence takes place.

FIGS. 5A and 5B also show in phantom a row of symbols above and below the display device 30 or 32. There is currently no paystop of the display device 30 or 32 which displays these symbols, however, one or more of these symbols may be nudged onto a paystop, i.e., onto one of the paylines 56a through 56c. FIGS. 5A and 5B therefore illustrate the symbol combinations on the reel strips adjacent to the displayed symbols of the paystops of the display device 30 or 32.

Again, if "diamond, 7, 7, 7" are winning combinations, and if the nudge sequence involves moving the reel 34a up one position so that the paystop 56b, 34a or the display device 30 or 32 displays the "diamond" symbol and the paystop 56a, 34a displays the "7" symbol as illustrated in FIG. 5B, gaming device 10 of the present invention provides to the player the "diamond, 7, 7" win on line 56a in FIG. 5A and the "7, 7, 7" win on line 56a in FIG. 5B. That is, gaming device 10 pays out before and after the nudge sequence.

It should be appreciated that if "grape, grape" on the paystops 56b, 34a or 56b, 34b along payline 56b also pays as a winning combination, the player also wins for this combination appearing in FIG. 5A. Further, if "cherry, cherry, cherry" on the paystops 56c, 34a; 56c, 34b; and 56c, 34c along payline 56c, the player also wins for this combination appearing in FIG. 5B after the nudge sequence.

If the nudge sequence moves a winning symbol or symbol combination up or down to another active payline or if the winning symbol or combination otherwise exists before and after the nudge sequence, gaming device 10 may provide an associated award: (i) before the nudge sequence only; (ii) before and after the nudge sequence but after only if the symbol or symbols move due to the nudge; and (iii) before and after the nudge sequence regardless of whether the winning combination changes paystops due to the nudge sequence. The payout may also depend upon whether the player has played the payline on which the winning symbol or combination appears. Thus, a winning symbol or symbol combination may be adapted to provide awards two or more times if it is not nudged off of the display device 30 or 32.

For example, assume the "grape, grape" symbols on payline 56b in FIG. 5A provide a payout to the player. If the "grape, grape" symbols move collectively to one of the other paylines 56a or 56c due to a nudge sequence, gaming device 10 may payout again according to one of the above-described scenarios. Or if the "grape, grape" symbols do not move but are displayed in both FIGS. 5A and 5B, the gaming device 10 may pay out before and after the nudge sequence, wherein gaming device 10 may be adapted to only pay if the player wagers on the payline bearing the winning symbol or combination.

Similarly, if one of the symbols is a nudge increment or nudge activator that provides one or more nudges to the player, i.e., increments a nudge meter or indicator (not illustrated), the game may be adapted to provide the nudge(s) (and possibly provide another nudge sequence if the nudge activator automatically executes the nudge): (i) before the nudge sequence only; (ii) before and after the nudge sequence but after the sequence only if the nudge increment or activator moves due to the nudge sequence; and (iii) before and after the nudge sequence regardless of whether the nudge increment or activator changes position due to the nudge sequence. Thus, the same nudge increment or activator may be adapted to provide nudge(s) two or more times if the symbol or symbols are not nudged off of the display device 30 or 32. Again, gaming device 10 in an embodiment requires that the nudge incrementor or activator resides on an active payline to provide a nudge (and possible the nudge sequence) to the player.

For example, assume the "club" symbol on payline 56a in FIG. 5A is a nudge incrementor or activator that provides at least one nudge to the player. If the "club" symbol moves to one of the other paylines 56c or 56d due to the nudge sequence, gaming device 10 may provide additional one or more nudges (and possibly additional one or more nudge sequences) again according to one of the above-described scenarios.

FIGS. 5A and 5B illustrate only one possible multi-payline embodiment. The pay before pay after sequence of the present invention is applicable to any combination of paylines 56, for example, horizontal, diagonal or paylines including any combination adjacent symbols from each reel. The present invention is applicable to a gaming device having any number of reels and any number of paylines such as one, three, five, nine, ten, fifteen and twenty-five paylines. The present invention also applies to gaming devices having independent reel columns, which are disclosed in U.S. Pat. No. 5,968,428, assigned to the assignee of this invention, which is incorporated herein by reference.

FIGS. 6A and 6B illustrate the same multiple-payline embodiment as in FIGS. 5A and 5B except that in FIG. 5A, paystop 56e, 34c, paystop 56d, 34a and one of the hidden symbols of the row below the display device 30 or 32 contain a blank or ghost symbol 58. Blank symbols can be employed to the single payline embodiment of FIGS. 4A and 4B, however, gaming device 10 may easily be adapted never to nudge a blank onto the single payline 56. In FIG. 6A, however, nudging reel 34a up one paystop causes the blank 58 currently residing at the paystop 56d, 34a to shift to the payline 56e, as illustrated in 6B, which disrupts the "grape, grape" winning combination along payline 56e in FIG. 6A. Gaming device 10 of the present invention therefore pays the "grape, grape" in FIG. 6A first and then nudges the reel 34a to create the "7, 7, 7" combination along payline 56d in FIG. 6B. In this manner, the blank 58 does not take a win away from the player.

In any of the embodiments disclosed in connection with FIGS. 4, 5 and 6, the nudge sequence may be adapted to include any of the following: (i) nudging any one reel up or down one paystop; (ii) nudging any combination of reels including all the reels up or down one paystop; (iii) nudging any one reel up or down a plurality of paystops; (iv) nudging any combination of reels including all the reels up or down a plurality of paystops; (v) nudging any one reel up one or more times if the symbol or symbols are not nudged off of the display device 30 or 32. Again, gaming device 10 in an embodiment requires that the nudge incrementor or activator resides on an active payline to provide a nudge (and possible the nudge sequence) to the player.
more paystops and, in the same sequence, nudging any one reel down one or more paystops; and (vi) nudging any combination of reels up one or more paystops and, in the same sequence, nudging any combination of reels down one or more paystops.

[0074] Many known slot machines have independent reel control through stepper motors that independently control each reel, wherein the stepper motors are adapted to receive motor currents based on the outcome of random generation devices stored in software in memory device 40 or in some other computer storage device within or associated with gaming device 10. Those skilled in the art are therefore adept at achieving the various sequences disclosed herein.

[0075] Gaming device 10 may be adapted to provide the same nudge sequence time after time or vary the sequences on a predetermined or random basis. If randomly varied, the set of sequences from which a random generation device selects may be weighted according to any desired distribution. In one embodiment, gaming device 10 accompanies the nudge sequences with a suitable audio message from the speakers 36, such as “NUDGE NOW.”

[0076] While the present invention is described in connection with what is presently considered to be the most practical and preferred embodiments, it should be appreciated that the invention is not limited to the disclosed embodiments, and is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the claims. Modifications and variations in the present invention may be made without departing from the novel aspects of the invention as defined in the claims, and this application is limited only by the scope of the claims.

The invention is claimed as follows:

1. A gaming device comprising:
   a plurality of reels each having a plurality of symbols;
   a display device that enables a player to see a number of symbols on each reel, creating a plurality of visible symbols;
   a payline that designates certain of the visible symbols for a payout determination;
   a first payout provided to the player if the reels spin and produce a first set of symbols on the payline that generates a winning combination;
   a randomly determined nudge activator;
   a nudge sequence initiated by the nudge activator and displayed by the display device, wherein one of the visible symbols on one of the reels in the first set is shifted so that a second set of symbols appears on the payline; and
   a second payout provided to the player if the second set of symbols generates a winning combination.

2. The gaming device of claim 1, wherein the nudge activator is generated upon a spin of the reels.

3. The gaming device of claim 2, wherein the nudge activator includes at least one of the visible symbols.

4. The gaming device of claim 1, which includes a plurality of nudge sequences and wherein the nudge activator initiates a plurality of sequential nudge sequences.

5. The gaming device of claim 1, which includes a second nudge sequence displayed by the display device in which a symbol of the second set is shifted off of the payline.

6. The gaming device of claim 5, wherein the display device defines a plurality of paystops that are each stopping positions for the symbols, and wherein shifting visible symbols of the first and second nudge sequences occurs in the same paystop.

7. The gaming device of claim 5, wherein the display device defines a plurality of paystops that are each stopping positions for the symbols, and wherein shifting visible symbols of the first and second nudge sequences occurs in different paystops.

8. The gaming device of claim 1, wherein the nudge sequence shifts a plurality of symbols of the first set.

9. The gaming device of claim 1, wherein the display device defines a plurality of paystops that are each stopping positions for the symbols, and wherein the nudge sequence includes one of: nudging one of the reels up one paystop; nudging one of the reels down one paystop; nudging a plurality of the reels up one paystop; nudging a plurality of the reels down one paystop; nudging another one of the reels down at least one paystop; and nudging a plurality of the reels up at least one paystop while nudging a plurality of the reels down at least one paystop.

10. A gaming device comprising:
   a plurality of reels each having a plurality of symbols;
   a display device that enables a player to see a number of symbols on each reel, creating a plurality of visible symbols;
   a plurality of paylines that each designate certain of the visible symbols, from the plurality of visible symbols, for a payout determination;
   a first payout provided to the player if the reels spin and produce first sets of symbols along the paylines that generate a winning combination;
   a nudge sequence displayed by the display device in which one of the reels is moved to form second sets of symbols that appear on the paylines; and
   a second payout provided to the player if the second sets generate a winning combination.

11. The gaming device of claim 10, wherein the first and second payouts include an accumulation of at least one winning symbol or symbol combination along at least one of the paylines.

12. The gaming device of claim 10, which includes a nudge activator generated upon a spin of the reels, wherein the nudge activator initiates the nudge sequence.

13. The gaming device of claim 12, wherein the nudge activator includes at least one of the visible symbols.

14. The gaming device of claim 12, wherein the nudge activator includes a portion of one of the visible symbols.

15. The gaming device of claim 10, which includes a nudge activator generated upon a spin of the reels, wherein the nudge activator initiates a plurality of sequential nudge sequences.

16. The gaming device of claim 10, which includes a second nudge sequence displayed by the display device
wherein one of the symbols of each of the second sets of symbols is moved off of the respective payline.

17. The gaming device of claim 16, wherein the display device defines a plurality of paystoppers that are each stopping positions for the symbols, wherein moving symbols during the first and second nudge sequences takes place in the same paystoppers.

18. The gaming device of claim 16, wherein the display device defines a plurality of paystoppers that are each stopping positions for the symbols, wherein moving symbols during the first and second nudge sequences takes place in different paystoppers.

19. The gaming device of claim 10, wherein the nudge sequence moves a plurality of symbols of at least one of the first sets.

20. A gaming device comprising:
   a plurality of reels each having a plurality of symbols;
   a display device that enables a player to see a number of the symbols on each reel, creating a plurality of visible symbols;
   a plurality of paylines that each designate certain of the visible symbols, from the plurality of symbols, for a payout determination;
   a nudge activator generated upon a spin of the reels that initiates at least one nudge sequence, each sequence shifting a visible symbol off of each payline; and
   a payout determination after each nudge sequence.

21. The gaming device of claim 20, wherein the nudge sequence includes moving one of the reels to shift the visible symbol off the payline.

22. The gaming device of claim 20, wherein the nudge activator includes at least one of the visible symbols and wherein at least one of the nudge sequences produces another nudge activator.

23. The gaming device of claim 20, wherein the nudge activation includes a portion of one of the visible symbols.

24. The gaming device of claim 20, wherein the sequence includes shifting one of the visible symbols to become not visible and, on the same reel, shifting a previously unseen symbol to become one of the visible symbols.

25. A method of operating a gaming device having a plurality of paylines, said method comprising the steps of:
   (a) generating a first set of symbols on the paylines;
   (b) providing a first award to a player if the first award is generated by the first set of symbols;
   (c) providing a nudge sequence display in which one of the reels moves, generating a second set of symbols on the paylines; and
   (d) providing a second award to the player if the second award is generated by the second set of symbols.

26. The method of claim 25, which includes the step of accumulating a nudge prior to providing the nudge sequence.

27. The method of claim 26, wherein accumulating the nudge occurs upon the occurrence of an event other than the generation of said symbols.

28. The method of claim 27, wherein the event is selected from the group consisting of: a bonus game and an amount of the player’s wager.

29. The method of claim 25, which includes generating a nudge activator that initiates the nudge sequence.

30. The method of claim 25, wherein the first set of symbols provides a nudge activator that initiates the nudge sequence.

31. The method of claim 25, which includes generating a nudge incrementor that provides a nudge prior to generating the first set of symbols and generating a nudge activator in the first set of symbols that activates the nudge.

32. The method of claim 25, which includes providing the first award to the player again if one or more of the symbols that generate the first award appear again in the second set of symbols.

33. The method of claim 25, which includes providing the first award to the player again if one or more of the symbols that generate the first award change position due to the nudge sequence and appear on another active payline.

34. The method of claim 25, which includes providing a second nudge sequence after generating the first set of symbols.

35. The method claim 25, which includes generating a nudge incrementor that provides a plurality of nudges prior to generating the first set of symbols.

36. The method claim 25, which includes generating a plurality of nudge incrementors that provide a plurality of nudges prior to generating the first set of symbols.

37. The method of claim 25, which includes providing a second nudge sequence after generating the second set of symbols.

38. The method of claim 37, which includes providing the nudge sequence when a nudge activator appears in the first set and providing the second nudge sequence when the same nudge activator appears in the second set of symbols.

39. The method of claim 38, wherein the same nudge activator generates the second sequence when the nudge activator changes position due to the first nudge sequence.

40. The method of claim 38, wherein the same nudge activator generates the second sequence if the nudge activator appears on an active payline in the second set of symbols.

41. The method of claim 37, which includes providing the nudge sequence when a first nudge activator appears in the first set and providing the second nudge sequence when a second nudge activator appears in the second set of symbols.

42. The method of claim 25, which includes providing a first nudge to the player when a nudge incrementor appears in the first set of symbols and providing a second nudge to the player when the same nudge incrementor appears in the second set of symbols.

43. The method of claim 42, wherein the same nudge incrementor provides the second nudge to the player when the nudge incrementor changes position due to the nudge sequence.

44. The method of claim 42, wherein the same nudge incrementor provides the second nudge to the player if the nudge incrementor appears on an active payline in the second set of symbols.

45. The method of claim 25, which includes providing a first nudge to the player when a first nudge incrementor
appears in the first set and providing a second nudge to the player when a second nudge incrementor appears in the second set of symbols.

46. The method of claim 25, which includes generating a nudge activator prior to generating the first set of symbols and providing the nudge sequence upon generating a nudge incrementor in the first set.

47. The method of claim 25, which includes providing steps (a) to (e) through a data network.

48. The method of claim 47, wherein the data network is an internet.

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