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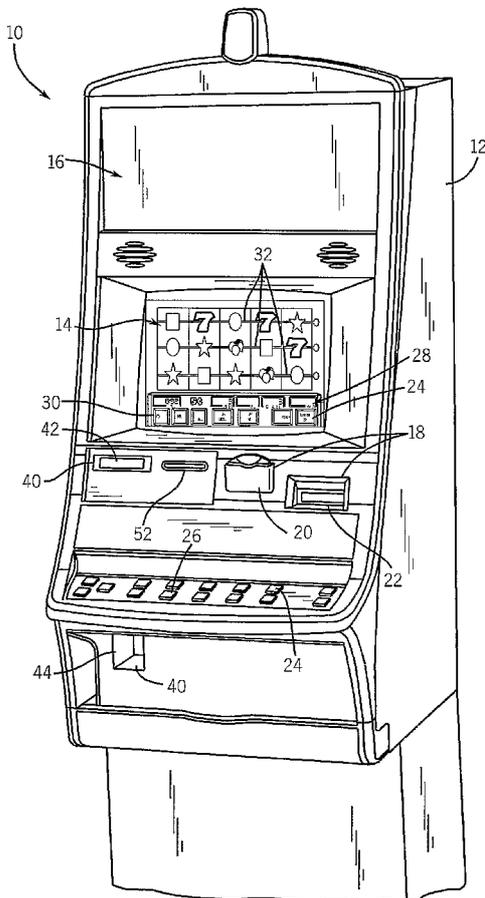
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(54) **Title:** GAMING MACHINE HAVING PLAYER SELECTABLE VOLATILITY



(57) **Abstract:** A gaming machine for conducting a wagering game includes a value input device for receiving a wager and a display for displaying a plurality of symbols arranged on a plurality of reels. The symbols indicate a randomly-selected outcome selected from a plurality of possible outcomes, the plurality of outcomes including at least one winning outcome. The gaming machine further includes a controller operative to receive a volatility input from a player of the gaming machine. The controller is further operative to associate an award with the at least one winning outcome wherein the associated award is either a first award amount or a second award amount based upon the volatility input. Upon the occurrence of the at least one winning outcome, the controller awards the associated award to the player.

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FIELD OF THE INVENTION

[0002] The present invention relates generally to gaming machines, and methods for playing wagering games, and more particularly, to a gaming machine having player selectable volatility.

BACKGROUND OF THE INVENTION

[0003] Gaming machines, such as slot machines, video poker machines and the like, have been a cornerstone of the gaming industry for several years. Generally, the popularity of such machines with players is dependent on the likelihood (or perceived likelihood) of winning money at the machine and the intrinsic entertainment value of the machine relative to other available gaming options. Where the available gaming options include a number of competing machines and the expectation of winning at each machine is roughly the same (or believed to be the same), players are likely to be attracted to the most entertaining and exciting machines. Shrewd operators consequently strive to employ the most entertaining and exciting machines, features, and enhancements available because such machines attract frequent play and hence increase profitability to the operator. Therefore, there is a continuing need for gaming machine manufacturers to continuously develop new games and improved gaming enhancements that will attract frequent play through enhanced entertainment value to the player.

[0004] One concept that has been successfully employed to enhance the entertainment value of a game is the concept of a "secondary" or "bonus" game that may be played in conjunction with a "basic" game. The bonus game may comprise any type of game, either similar to or completely different from the basic game, which is entered upon the occurrence of a selected event or outcome in the basic game. Generally, bonus games provide a greater expectation of winning than the basic game and may also be accompanied with more attractive or unusual video

displays and/or audio. Bonus games may additionally award players with "progressive jackpot" awards that are funded, at least in part, by a percentage of coin-in from the gaming machine or a plurality of participating gaming machines. Because the bonus game concept offers tremendous advantages in player appeal and excitement relative to other known games, and because such games are attractive to both players and operators, there is a continuing need to develop gaming machines with new types of bonus games to satisfy the demands of players and operators.

[0005] Traditionally gaming machines operate under control of a processor which has been programmed to execute base games and bonus games on the machine according to a predetermined mathematical model. Therefore, the volatility of the gaming machines have been fixed or preset by the manufacturer. One shortcoming of such a configuration is that different players may desire differing degrees of volatility. Volatility generally means the ratio of size versus frequency of awards. Some players enjoy playing gaming machines with lower volatility, whereby the range of awards for winning outcomes is relatively narrow and the awards occur relatively frequently. Other players enjoy games with greater volatility, whereby the range of awards for winning outcomes is relatively large and the awards occur relatively less frequently. Due to the fixed programming nature of traditional gaming machines, players are forced to select their volatility by choosing amongst the variety of gaming machines available to be played at a casino. The present invention is directed to solving these and other problems.

SUMMARY OF THE INVENTION

[0006] According to one aspect of the present invention, a gaming machine for conducting a wagering game includes a value input device for receiving a wager and a display for displaying a plurality of symbols arranged on a plurality of rotatable reels. The symbols indicate a randomly-selected outcome selected from a plurality of possible outcomes, the plurality of outcomes including at least one winning outcome. The gaming machine includes a controller operative to receive a volatility input from a player of the gaming machine. The controller associates an award with the at least one winning outcome wherein the associated award is either a first award amount or a second award amount based upon the volatility input. Upon the occurrence of the at least one winning outcome, the controller awards the associated award to the player.

[0007] According to another aspect of the present invention, a gaming machine for conducting a wagering game includes a value input device for receiving a wager and a display

for displaying a plurality of selectable elements. The gaming machine further includes a controller operative to receive a volatility input from a player of the gaming machine and associate a first selectable element with an award, the award chosen from either a first group of awards or a second group of awards based upon the volatility input.

[0008] According to another aspect of the invention, a method of conducting a wagering game on a gaming machine comprises receiving a wager from a player of the gaming machine and displaying a plurality of symbols. The method further comprises receiving a volatility input from the player and based upon the volatility input, selecting either a first range of awards or a second range of awards. The method further comprises associating a first group of the plurality of symbols with an award in the selected range.

[0009] According to yet another aspect of the invention, a computer readable storage medium is encoded with instructions for directing a gaming device to perform the above method.

[0010] Additional aspects of the invention will be apparent to those of ordinary skill in the art in view of the detailed description of various embodiments, which is made with reference to the drawings, a brief description of which is provided below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 is a perspective view of a gaming machine embodying the present invention.

[0012] FIG. 2 is a block diagram of a control system suitable for operating the gaming machine.

[0013] FIG. 3 is a front view of the display of the gaming machine.

[0014] FIG. 4 is a front view of the display of the gaming machine, depicting a plurality of volatility inputs.

[0015] FIG. 5 is a front view of the display of the gaming machine, depicting a conclusion of a play of the game.

[0016] FIG. 6 is a front view of the display of a second embodiment of the gaming machine.

[0017] FIG. 7 is a front view of the display of FIG. 6, depicting a plurality of volatility inputs.

[0018] FIG. 8 is a front view of the display of FIG. 6, depicting a play of the game.

[0019] FIG. 9 is a front view of the display of FIG. 6, depicting a conclusion of a play of the game.

[0020] FIG. 10 is a front view of the display of a third embodiment of the gaming machine, depicting a plurality of volatility selections.

[0021] FIG. 11 is a front view of the display of FIG. 10, depicting a play of the game.

[0022] FIG. 12 is a front view of the display of FIG. 10, depicting a conclusion of a play of the game.

[0023] FIG. 13 is a front view of the display of a fourth embodiment of the gaming machine, depicting a plurality of volatility selections.

[0024] FIG. 14 is a front view of the display of FIG. 13, depicting a play of the game.

[0025] FIG. 15 is a front view of the display of FIG. 13, depicting an alternative configuration of the fourth embodiment.

[0026] FIG. 16 is a front view of the display of FIG. 15, depicting a play of the game.

DETAILED DESCRIPTION

[0027] While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail preferred embodiments of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to the embodiments illustrated.

[0028] Referring to FIG. 1, a gaming machine 10 is used in gaming establishments such as casinos. With regard to the present invention, the gaming machine 10 may be any type of gaming machine and may have varying structures and methods of operation. For example, the gaming machine 10 may be an electromechanical gaming machine configured to play mechanical slots, or it may be an electronic gaming machine configured to play a video casino game, such as blackjack, slots, keno, poker, blackjack, roulette, etc.

[0029] The gaming machine 10 comprises a housing 12 and includes input devices, including a value input device 18 and a player input device 24. For output the gaming machine 10 includes a primary display 14 for displaying information about the basic wagering game. The primary display 14 can also display information about a bonus wagering game and a progressive wagering game. The gaming machine 10 may also include a secondary display 16 for displaying game events, game outcomes, and/or signage information. While these typical components found in the gaming machine 10 are described below, it should be understood that numerous other

elements may exist and may be used in any number of combinations to create various forms of a gaming machine 10.

[0030] The value input device 18 may be provided in many forms, individually or in combination, and is preferably located on the front of the housing 12. The value input device 18 receives currency and/or credits that are inserted by a player. The value input device 18 may include a coin acceptor 20 for receiving coin currency (see FIG. 1). Alternatively, or in addition, the value input device 18 may include a bill acceptor 22 for receiving paper currency. Furthermore, the value input device 18 may include a ticket reader, or barcode scanner, for reading information stored on a credit ticket, a card, or other tangible portable credit storage device. The credit ticket or card may also authorize access to a central account, which can transfer money to the gaming machine 10.

[0031] The player input device 24 comprises a plurality of push buttons 26 on a button panel for operating the gaming machine 10. In addition, or alternatively, the player input device 24 may comprise a touch screen 28 mounted by adhesive, tape, or the like over the primary display 14 and/or secondary display 16. The touch screen 28 contains soft touch keys 30 denoted by graphics on the underlying primary display 14 and used to operate the gaming machine 10. The touch screen 28 provides players with an alternative method of input. A player enables a desired function either by touching the touch screen 28 at an appropriate touch key 30 or by pressing an appropriate push button 26 on the button panel. The touch keys 30 may be used to implement the same functions as push buttons 26. Alternatively, the push buttons 26 may provide inputs for one aspect of the operating the game, while the touch keys 30 may allow for input needed for another aspect of the game.

[0032] The various components of the gaming machine 10 may be connected directly to, or contained within, the housing 12, as seen in FIG. 1, or may be located outboard of the housing 12 and connected to the housing 12 via a variety of different wired or wireless connection methods. Thus, the gaming machine 10 comprises these components whether housed in the housing 12, or outboard of the housing 12 and connected remotely.

[0033] The operation of the basic wagering game is displayed to the player on the primary display 14. The primary display 14 can also display the bonus game associated with the basic wagering game. The primary display 14 may take the form of a cathode ray tube (CRT), a high resolution LCD, a plasma display, an LED, or any other type of display suitable for use in the

gaming machine 10. As shown, the primary display 14 includes the touch screen 28 overlaying the entire monitor (or a portion thereof) to allow players to make game-related selections. Alternatively, the primary display 14 of the gaming machine 10 may include a number of mechanical reels to display the outcome in visual associated to at least one payline 32. In the illustrated embodiment, the gaming machine 10 is an "upright" version in which the primary display 14 is oriented vertically relative to the player. Alternatively, the gaming machine may be a "slant-top" version in which the primary display 14 is slanted at about a thirty-degree angle toward the player of the gaming machine 10.

[0034] A player begins play of the basic wagering game by making a wager via the value input device 18 of the gaming machine 10. A player can select play by using the player input device 24, via the buttons 26 or the touch screen keys 30. The basic game consists of a plurality of symbols arranged in an array, and includes at least one payline 32 that indicates one or more outcomes of the basic game. Such outcomes are randomly selected in response to the wagering input by the player. At least one of the plurality of randomly-selected outcomes may be a start-bonus outcome, which can include any variations of symbols or symbol combinations triggering a bonus game.

[0035] In some embodiments, the gaming machine 10 may also include a player information reader 52 that allows for identification of a player by reading a card with information indicating his or her true identity. The player information reader 52 is shown in FIG. 1 as a card reader, but may take on many forms including a ticket reader, bar code scanner, RFID transceiver or computer readable storage medium interface. Currently, identification is generally used by casinos for rewarding certain players with complimentary services or special offers. For example, a player may be enrolled in the gaming establishment's loyalty club and may be awarded certain complimentary services as that player collects points in his or her player-tracking account. The player inserts his or her card into the player information reader 52, which allows the casino's computers to register that player's wagering at the gaming machine 10. The gaming machine 10 may use the secondary display 16 or other dedicated player-tracking display for providing the player with information about his or her account or other player-specific information. Also, in some embodiments, the information reader 52 may be used to restore game assets that the player achieved and saved during a previous game session.

[0036] Turning now to FIG. 2, the various components of the gaming machine 10 are controlled by a central processing unit (CPU) 34, also referred to herein as a controller or processor (such as a microcontroller or microprocessor). To provide gaming functions, the controller 34 executes one or more game programs stored in a computer readable storage medium, in the form of memory 36. The controller 34 performs the random selection (using a random number generator (RNG)) of an outcome from the plurality of possible outcomes of the wagering game. Alternatively, the random event may be determined at a remote controller. The remote controller may use either an RNG or pooling scheme for its central determination of a game outcome. It should be appreciated that the controller 34 may include one or more microprocessors, including but not limited to a master processor, a slave processor, and a secondary or parallel processor.

[0037] The controller 34 is also coupled to the system memory 36 and a money/credit detector 38. The system memory 36 may comprise a volatile memory (*e.g.*, a random-access memory (RAM)) and a non-volatile memory (*e.g.*, an EEPROM). The system memory 36 may include multiple RAM and multiple program memories. The money/credit detector 38 signals the processor that money and/or credits have been input via the value input device 18. Preferably, these components are located within the housing 12 of the gaming machine 10. However, as explained above, these components may be located outboard of the housing 12 and connected to the remainder of the components of the gaming machine 10 via a variety of different wired or wireless connection methods.

[0038] As seen in FIG. 2, the controller 34 is also connected to, and controls, the primary display 14, the player input device 24, and a payoff mechanism 40. The payoff mechanism 40 is operable in response to instructions from the controller 34 to award a payoff to the player in response to certain winning outcomes that might occur in the basic game or the bonus game(s). The payoff may be provided in the form of points, bills, tickets, coupons, cards, etc. For example, in FIG. 1, the payoff mechanism 40 includes both a ticket printer 42 and a coin outlet 44. However, any of a variety of payoff mechanisms 40 well known in the art may be implemented, including cards, coins, tickets, smartcards, cash, etc. The payoff amounts distributed by the payoff mechanism 40 are determined by one or more pay tables stored in the system memory 36.

[0039] Communications between the controller 34 and both the peripheral components of the gaming machine 10 and external systems 50 occur through input/output (I/O) circuits 46, 48. More specifically, the controller 34 controls and receives inputs from the peripheral components of the gaming machine 10 through the input/output circuits 46. Further, the controller 34 communicates with the external systems 50 via the I/O circuits 48 and a communication path (*e.g.*, serial, parallel, IR, RC, 10bT, *etc.*). The external systems 50 may include a gaming network, other gaming machines, a gaming server, communications hardware, or a variety of other interfaced systems or components. Although the I/O circuits 46, 48 may be shown as a single block, it should be appreciated that each of the I/O circuits 46, 48 may include a number of different types of I/O circuits.

[0040] Controller 34, as used herein, comprises any combination of hardware, software, and/or firmware that may be disposed or resident inside and/or outside of the gaming machine 10 that may communicate with and/or control the transfer of data between the gaming machine 10 and a bus, another computer, processor, or device and/or a service and/or a network. The controller 34 may comprise one or more controllers or processors. In FIG. 2, the controller 34 in the gaming machine 10 is depicted as comprising a CPU, but the controller 34 may alternatively comprise a CPU in combination with other components, such as the I/O circuits 46, 48 and the system memory 36.

[0041] Turning now to FIG. 3, the display 14 of the gaming machine 10 is depicted displaying a plurality of reels 60a,b,c,d,e and at least one payline 32. Each of the reels 60a,b,c,d,e includes a plurality of symbols 62 viewable via the display 14. The reels 60a,b,c,d,e may be either mechanical reels or video simulation of rotatable reels. Certain combinations of symbols 62 appearing on the payline 32 constitute winning combinations for which awards are earned. Although in this embodiment, the symbols 62 are arranged on reels 60a,b,c,d,e, it should be understood that the symbols 62 may be arranged in any array or matrix, for which certain combinations of symbols 62 may be designated as being winning combinations and associated with prizes or awards.

[0042] In FIG. 4, prior to a play of the gaming machine 10, a player is prompted to provide a volatility input via a selection screen or pop up window 64. The pop up window 64 includes a prompting message 66 to the player, which in this case indicates "Choose your level of Volatility." Additionally, the pop up window 64 includes a plurality of volatility selections

68a,b,c which preferably correspond to differing levels of volatility of play of the gaming machine 10. In this embodiment, the volatility selections 68a,b,c correspond with "Low", "Medium", and "High" volatility, respectively. Regardless of the volatility level selected by the player, the expected value (EV) of the game is preferably constant. The selected volatility level, however, affects the standard deviation of the actual award from this expected value. "High" volatility means that the standard deviation of the actual award from the expected value is relatively high; "low" volatility means that the standard deviation of the actual award from the expected value is relatively low (as compared to "medium" and "high"); and "medium" volatility means that the standard deviation of the actual award from the expected value is relatively medium (as compared to "high" and "low"). Each volatility selection 68a,b,c is associated with its own payable 70a,b,c indicating a plurality of winning combinations 72. Each winning combination 72 is associated with an award 74. Generally, a selection of a higher volatility results in the gaming machine 10 being configured to award larger payouts, but less frequently, while lower volatility causes the gaming machine 10 to award smaller payouts, but more frequently.

[0043] As seen in FIG. 4, not every winning combination 72 is included in the payable 70a,b,c for each volatility selection 68a,b,c. For example, the "Low" volatility selection 68a includes four winning combinations 72 for which awards 74 are paid, while the "High" volatility selection 68c includes only one winning combination 72 for which an award 74 is paid. Additionally, the same winning combination 72 may be included in the payable 70 of more than one volatility selection 68a,b,c. As seen here, the "Five of a Kind" winning combination 72 appears in the payable 70a,b,c of all three volatility selections 68a,b,c. However, in accordance with the invention, the award 74 associated with a particular winning combination 72 varies based upon the volatility selection 68a,b,c. As seen here, the "Five of a Kind" winning combination 72 pays an award 74 of 200 credits if the "Low" volatility selection 68a is chosen, and increases to an award 74 of 10,000 credits if the "High" volatility selection 68c is chosen.

[0044] In FIG. 5, a play of the gaming machine 10 is depicted, following the receipt of the volatility input from the player. The display 14 indicates that the player has selected "Medium" volatility, corresponding with the second volatility selection 68b. This volatility input activates the payable 70b associated with the "Medium" volatility selection 68b. Thus, the reels 60a,b,c,d,e and are spun and the symbols 62 landing on the payline 32 are evaluated against the

activated payable 70b. A "Four of a Kind" (four Sevens) winning combination 72 has landed on the payline 32, as seen in FIG. 5. Thus, an award 74 of 500 credits is awarded to the player in accordance with the payable 70b of winning combinations 72a,b,c associated with the "Medium" volatility selection 68b. Had the "Four of a Kind" combination 72 landed following a "Low" volatility selection 68a, an award of only 100 credits would have been made in accordance with the first payable 70a. Similarly, if the "Four of a Kind" combination 72 landed following a "High" volatility selection 68c, no award 74 would be given because the "Four of a Kind" combination 72 is not included in the payable 70c associated with that volatility selection 68c.

[0045] A second embodiment of the gaming machine 10 is depicted in FIGS. 6-9. In FIG. 6, the display 14 displays a plurality of selectable elements 80. In this embodiment, each of the selectable elements 80 is associated with either an award 82 or a terminator symbol 84, which is initially obscured from view by the symbol 80. In FIG. 7, the pop up window 64 allows the player to provide a volatility input by selecting one of three volatility selections 68a,b,c. In this embodiment, each volatility selection 68a,b,c has an associated award range 86a,b,c or group. Furthermore, each volatility selection 68a,b,c is associated with a predetermined number 88 of terminator symbols 84. Generally, a higher volatility selection is associated with larger awards and more terminator symbols while a lower volatility selection is associated with smaller awards and less terminator symbols. Here the player is again prompted by the prompting message 66 to "Choose your level of Volatility."

[0046] Turning to FIG. 8, a play of the gaming machine 10 according to the second embodiment is depicted. As indicated by the display 14, the player has provided a volatility input and selected the "Medium" volatility selection 68b. This selection 68b is associated with a predetermined number 88 of two terminator symbols 84, and an award range 86 of 20-50 credits (See FIG. 7). Thus, the plurality of selectable elements 80 in FIG. 8 has been populated by the controller 34 to be associated with awards 82 and terminator symbols 84. Thus, a first group of selectable elements 80 are associated with awards 82 while a second group of the selectable elements 80 are associated with terminator symbols 84. In accordance with the predetermined number 88, two terminator symbols 84 are associated with the selectable elements 80. Furthermore, the awards 82 associated with the remaining selectable elements 80 are selected from the award range 86 of 20-50 credits associated with the chosen volatility selection 68b.

[0047] The player is permitted to make selections of the selectable elements 80 until he or she selects an element 80 associated with a terminator symbol 84. In FIG. 8, the player has made four selections of selectable elements 80. The first three selections were selectable elements 80 associated with awards 84 having values of 50, 20, and 25 respectively. As indicated, all of the awards 84 fall within the award range 86 of 20-50. The fourth selection made by the player is of a selectable element 80 in the second group, and thus is associated with a terminator symbol 84, which in this embodiment is the word "End." The selection of a selectable element 80 associated with a terminator symbol 84 ends the play of the game. The display 14 indicates to the player that the game is over, and that player has won a total of 95 credits. Optionally, following the end of the game, the display 14 may be configured to reveal the unselected elements 80, as seen in FIG. 9. Here, the remaining selectable elements 80 include awards 82 not won by the player, and the remaining terminator symbol 84. Thus in this second embodiment, the award ranges 86a,b,c and number of terminator symbols 84 vary depending upon the volatility selection 68a,b,c, made.

[0048] A third embodiment of the gaming machine 10 is depicted in FIGS. 10-12. In FIG. 10, the display 14 of the gaming machine 10 displays a plurality of selectable elements 80. A pop up window 64 displays to the player a variety of volatility selections 68a,b,c and prompts the player for a volatility input via a prompting message 66. Each volatility selection 68a,b,c is associated with certain awards 82 and a predetermined number 88 of terminator symbols 84, which in this embodiment are "Collect" symbols.

[0049] The awards 82 of the third embodiment differ in that they are awards 82 relevant to a Free Spins or Free Play bonus game of an underlying base game. In the bonus game of the third embodiment, the player is prompted to make selections of the selectable elements 80 and accumulate awards 82 applicable to a subsequent Free Spin game. In one embodiment, the Free Spin game is a series of free spins of a slot game having a plurality of reels, as described herein. Thus, rather than the awards 82 being credit amounts, such as in the second embodiment, the awards 82 include increased multiplier awards 90, and increased free spin awards 92 which increase the expected value of the Free Spin game executed subsequently. Each volatility selection 68a,b,c is associated with a differing combination of terminator symbols 84, increased multiplier awards 90 and increased free spin award 92, as displayed in an award schedule 94a,b,c associated with each volatility selection 68a,b,c. Generally, a higher volatility selection is

associated with more terminator symbols and more valuable awards while a lower volatility selection is associated with less terminator symbols and less valuable awards.

[0050] In FIG. 11, a play of the bonus game of the third embodiment is depicted. The player has provided a volatility input by selecting the "Low" volatility selection 68a. Thus, the plurality of selectable elements 80 in FIG. 11 have been populated by the controller 34 to be associated with awards 82 (including increased multiplier awards 90 and increased free spin awards 92) and terminator symbols 84, in accordance with the award schedule 94a of the "Low" volatility selection 68a. Therefore, prior to the player selecting any of the selectable elements 80, the fourteen selectable elements 80 in FIG. 11 have been associated with two terminator symbols 84 ("Collect"), five increased multiplier awards 90 ("IX Multiplier"), and seven increased free spin awards (three "+2 Free Spins", three "+3 Free Spins" and one "+5 Free Spins").

[0051] As seen in FIG. 11, the player makes four selections of the selectable elements 80 before encountering an element 80 associated with a terminator symbol 84, thereby ending the bonus game. The first three selections made by the player reveal awards 82 including one increased multiplier award 90 and two increased free spin awards 92. The fourth selectable element 80 chosen by the player is associated with a terminator symbol 84, and upon the reveal of the "Collect" symbol, the bonus game ends. The display 14 indicates to the player that in the bonus game, he has accumulated awards 82 of seven additional free spins and one additional multiplier. Thus, when the subsequent free spins game begins, the player is awarded a standard number of free spins (e.g. 10 free spins), and an initial multiplier of one (IX). Because of the player's success in the bonus game, the awards 82 won are added to the standard amount giving the player 17 free spins and a 2x multiplier for the duration of the free spin game. Thus the awards 82 accumulated during the bonus game are added to a standard amount of free spins granted in the free spin game. As before, the unselected elements 80 may be revealed to the player as seen in FIG. 12, so that the player may see the awards 82 which were available to be won in the game in accordance with the schedule 94a. Thus, in third embodiment, the award schedules 94a,b,c (including the quantity of terminator symbols 84 and value of the awards 82) vary depending upon the volatility selection 68a,b,c, made.

[0052] A fourth embodiment of the gaming machine 10 is depicted in FIGS. 13-16. Similar to the second embodiment, the player is presented with a plurality of selectable elements 80 from which to choose. The player provides a volatility input by selecting a volatility selection 68a,b,c

presented to the player via a pop up window 64 on the display 14, as seen in FIG. 13. Each volatility selection 68a,b,c is associated with an award schedule 94a,b,c having an associated award range 86a,b,c or group, and an award average 96. The award ranges 86a,b,c are different for the varying volatility selections 68a,b,c, and preferably as the volatility increases from "Low" to "High", the associated award range 86a,b,c also increases, as see in FIG. 13. However, although the volatility selections 68a,b,c are associated with differing award ranges 68a,b,c, it is preferable that the award average 96 of each volatility selection 68a,b,c remain constant (e.g., award average 96 of 80 in FIG. 13).

[0053] Unlike the second embodiment which includes terminator symbols 84, the fourth embodiment operates to provide the player a predetermined number of selections of the selectable elements 80. Thus, the display 14 communicates to the player to "Make Three Selections." Turning to FIG. 14, the display 14 further indicates that the player has chosen the "High" volatility selection 68c. Therefore, the plurality of selectable elements 80 in FIG. 14 have been populated by the controller 34 to be associated with awards 82 selected from the award range 86c ("0 to 500"), in accordance with the award schedule 94c of the "High volatility selection 68c. The player then makes his three selections of the selectable elements 80, which reveal awards 82 of 0, 50, and 500 credits. The display 14 communicates to the player that he has won a total award of 550 credits. Thus, in this fourth embodiment, the ranges 86a,b,c, of the awards 82 vary depending upon the volatility selection 68a,b,c, made.

[0054] In FIG. 15, an alternative of the fourth embodiment is depicted wherein the predetermined number of selections which the player is allowed to make is dependent upon the volatility selection 68a,b,c, chosen. Thus, in FIG. 15, each volatility selection 68a,b,c, in addition to being associated with an award schedule 94a,b,c, and an average award 96, includes a number of selections 98 granted to the player if that volatility selection 68a,b,c is made. The award schedules 94a,b,c all include ranges 86a,b,c of awards 82, which again preferably increase as the selected volatility increases.

[0055] In FIG. 16, the player has provided a volatility input by selecting the "High" volatility selection 68c. In accordance with the award schedule 94c for that volatility selection 68c, the player is awarded only one selection 98 of the selectable elements 80. Furthermore, the plurality of selectable elements 80 in FIG. 16 have been populated by the controller 34 to be associated with awards 82 selected from the award range 86c ("20 to 500"), in accordance with the award

schedule 94c of the "High" volatility selection 68c. In FIG. 16, the player has utilized his one selection 98 to choose a selectable element 80, which is associated with an award 82 of 50 credits. This award 82 is displayed to the player on the display 14 which indicates "Game Over - 50 Credits Won." Thus, in this alternative, both the ranges 86a,b,c of awards 82 and the number of selections 98 vary depending upon the volatility selection 68a,b,c, made.

[0056] The gaming machine 10 of the present invention provides player selectable volatility which offers numerous benefits to both the player and the owner/operator of the gaming machine 10. By allowing the player the ability to select the level of volatility of the gaming machine 10, the player can customize the gaming machine 10 to offer an experience that is most preferable to the player's individual tastes. This customization configures the gaming machine 10 to play with high volatility and award a large range of awards, or with relatively lower volatility, and award a narrower range of awards. Customization of volatility may also be utilized to configure the gaming machine 10 to award larger awards relatively infrequently, or smaller awards more frequently, depending upon the player's preferences. These features provided added benefits to the player, who is encouraged to play more often at the gaming machine 10, and the owner/operator who, in turn, makes more money due to the increased play.

[0057] Each of these embodiments and obvious variations thereof is contemplated as falling within the spirit and scope of the claimed invention, which is set forth in the following claims.

CLAIMS:

What is claimed is:

1. A gaming machine comprising:
a value input device for receiving a wager;
a display for displaying a plurality of symbols arranged on a plurality of rotatable
5 reels, the symbols indicating a randomly-selected outcome selected from a plurality of
possible outcomes, the plurality of outcomes including at least one winning outcome; and
a controller operative to (i) receive a volatility input from a player of the gaming
machine, (ii) associate an award with the at least one winning outcome wherein the
associated award is either a first award amount or a second award amount based upon the
10 volatility input, and (iii) upon the occurrence of the at least one winning outcome, award
the associated award to the player.
2. The gaming machine of claim 1, wherein the volatility input is associated
with a payable displayed on the gaming machine.
3. The gaming machine of claim 1, wherein the first payout amount is greater
15 than the second payout amount.
4. The gaming machine of claim 3, wherein a probability of achieving the at
least one winning outcome is greater if the associated award is the second award.
5. The gaming machine of claim 1, wherein the display further displays a
plurality of volatility selections from which the volatility input is selected by the player.
- 20 6. A gaming machine comprising:
a value input device for receiving a wager;
a display for displaying a plurality of selectable elements; and
a controller operative to (i) receive a volatility input from a player of the gaming
machine, and (ii) associate a first selectable element with an award, the award chosen
25 from either a first group of awards or a second group of awards based upon the volatility
input.
7. The gaming machine of claim 6, wherein the display further displays a
plurality of volatility selections from which the volatility input is selected by the player.

8. The gaming machine of claim 6, wherein in response to the volatility input, the controller is further operative to associate a predetermined number of the plurality of selectable elements with a terminator symbol.

9. The gaming machine of claim 8, wherein the predetermined number
5 increases as a volatility associated with the volatility input increases.

10. The gaming machine of claim 6, wherein the first group of awards is selected from the group consisting of credit amounts, free spins, and multipliers.

11. The gaming machine of claim 6, wherein a range of the second group of awards is greater than a range of the first group of awards.

12. The gaming machine of claim 11, wherein the controller is operative to
10 grant the player a predetermined number of selections of the plurality of selectable elements.

13. A method of conducting a wagering game on a gaming machine, the method comprising:

15 receiving a wager from a player of the gaming machine;

displaying a plurality of symbols;

receiving a volatility input from the player;

based upon the volatility input, selecting either a first range of awards or a second range of awards; and

20 associating a first group of the plurality of symbols with an award in the selected range.

14. The method of claim 13, further comprising associating a second group of the plurality of symbols with a terminator symbol.

15. The method of claim 14, further comprising receiving selections from the player of the plurality of symbols until a symbol in the second group is selected.

25 16. The method of claim 15, wherein the number of symbols in the second group is dependent upon the volatility input.

17. The method of claim 13, further comprising receiving a predetermined number of selections of the plurality of symbols from the player.

30 18. The method of claim 17, wherein the predetermined number is dependent upon the volatility input.

19. The method of claim 15, further comprising displaying the award associated with unselected symbols in the first group.

20. A computer readable storage medium encoded with instructions for
5 directing a gaming device to perform the method of claim 13.

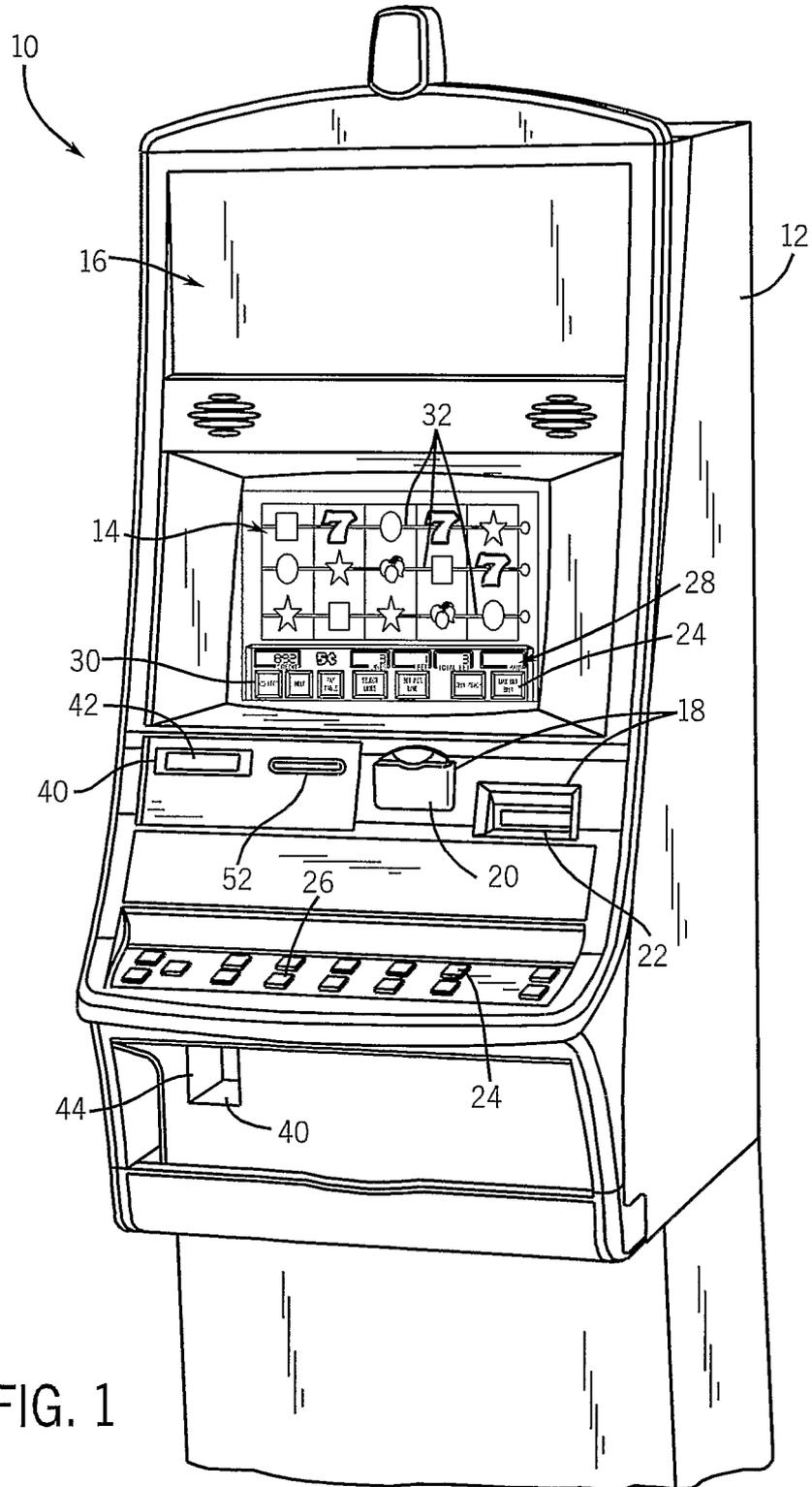
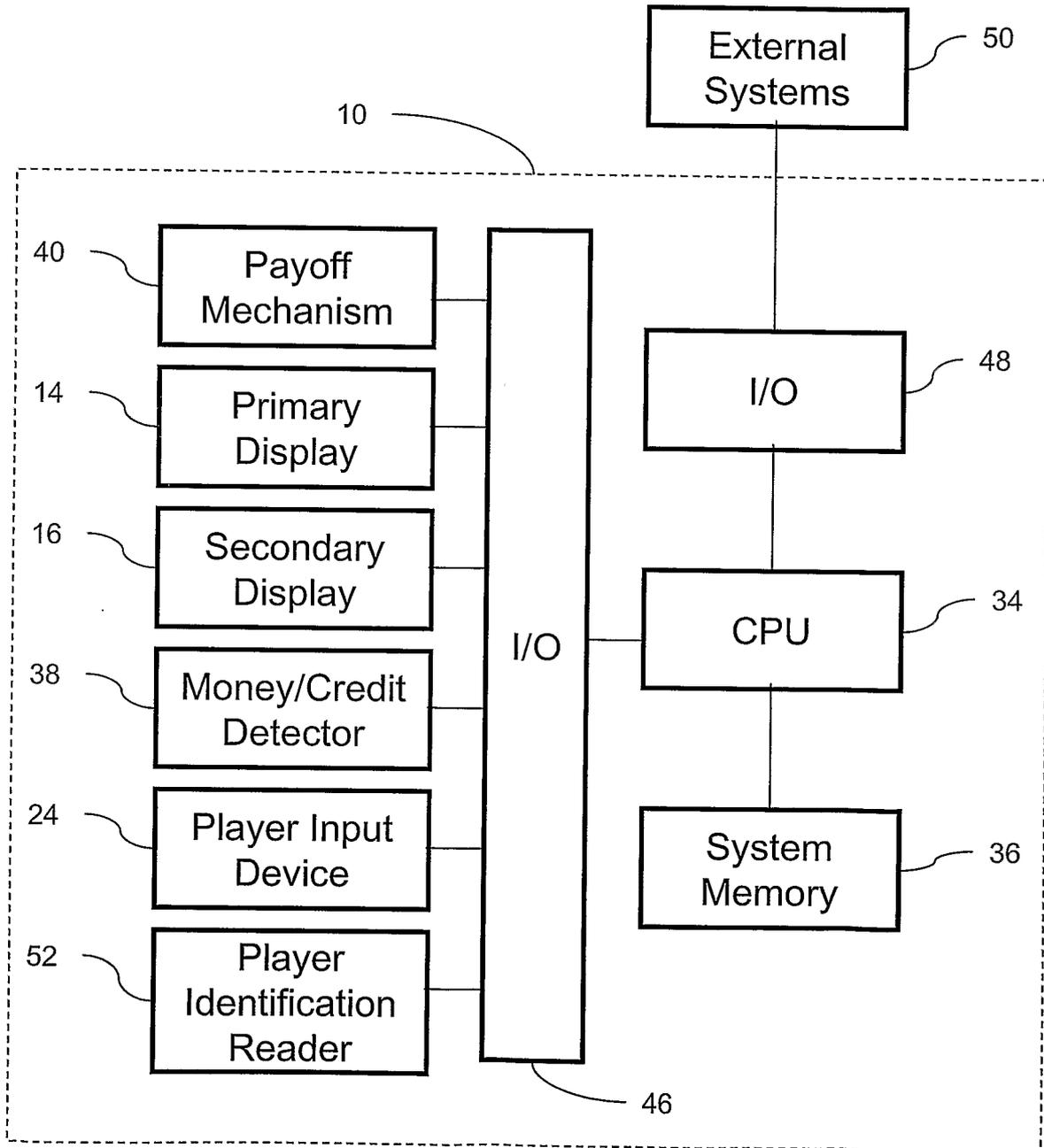


FIG. 2



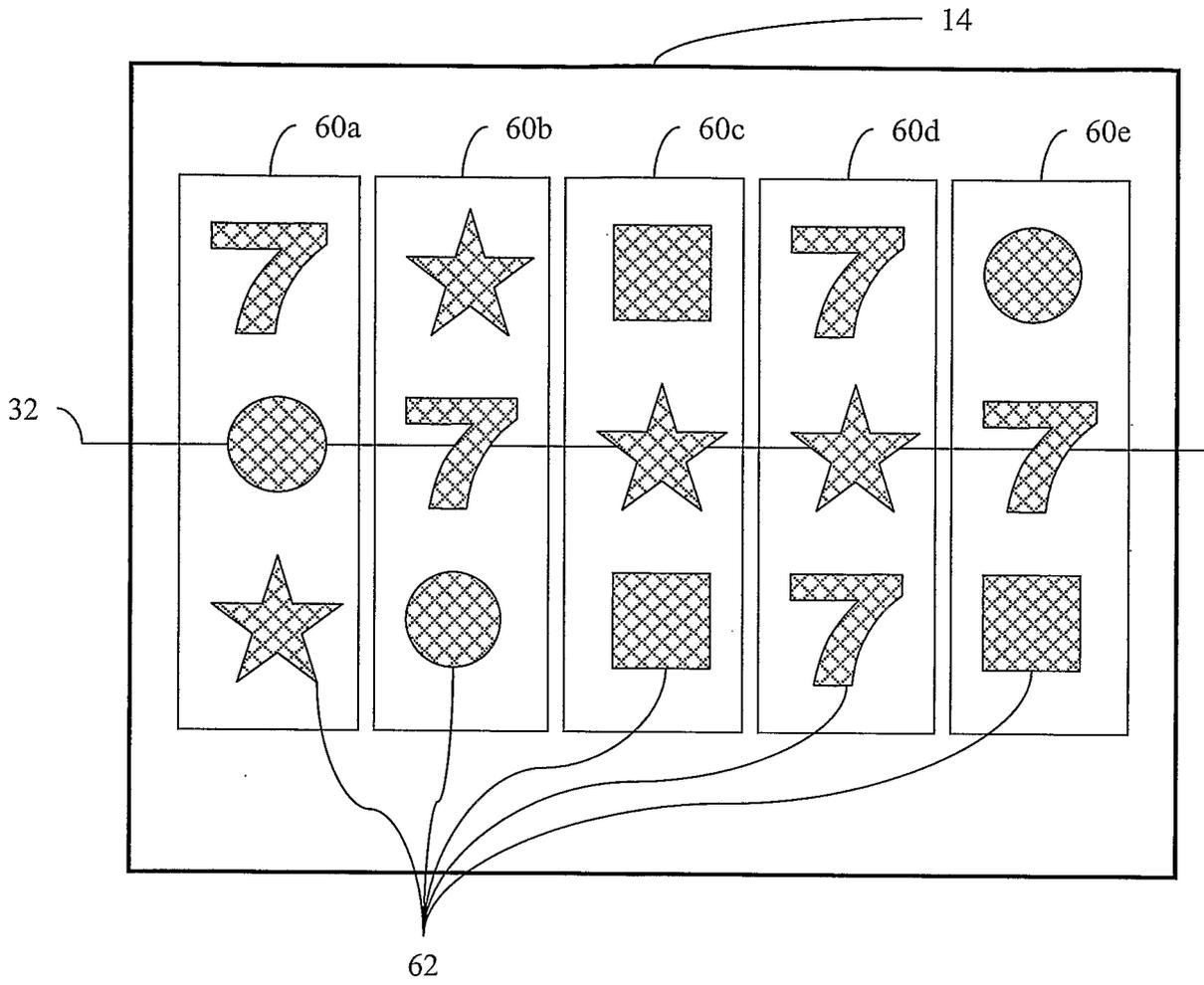
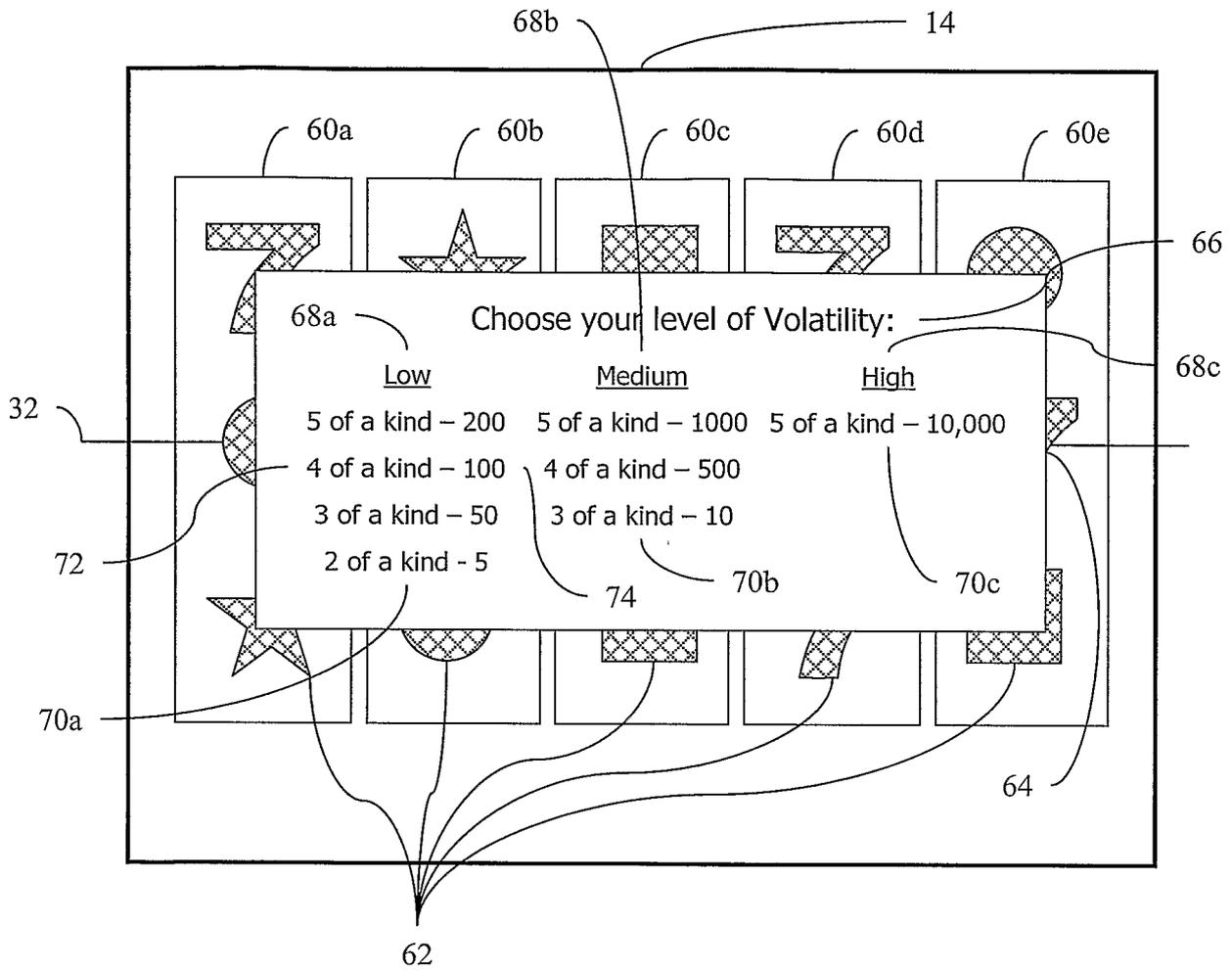


FIG. 3



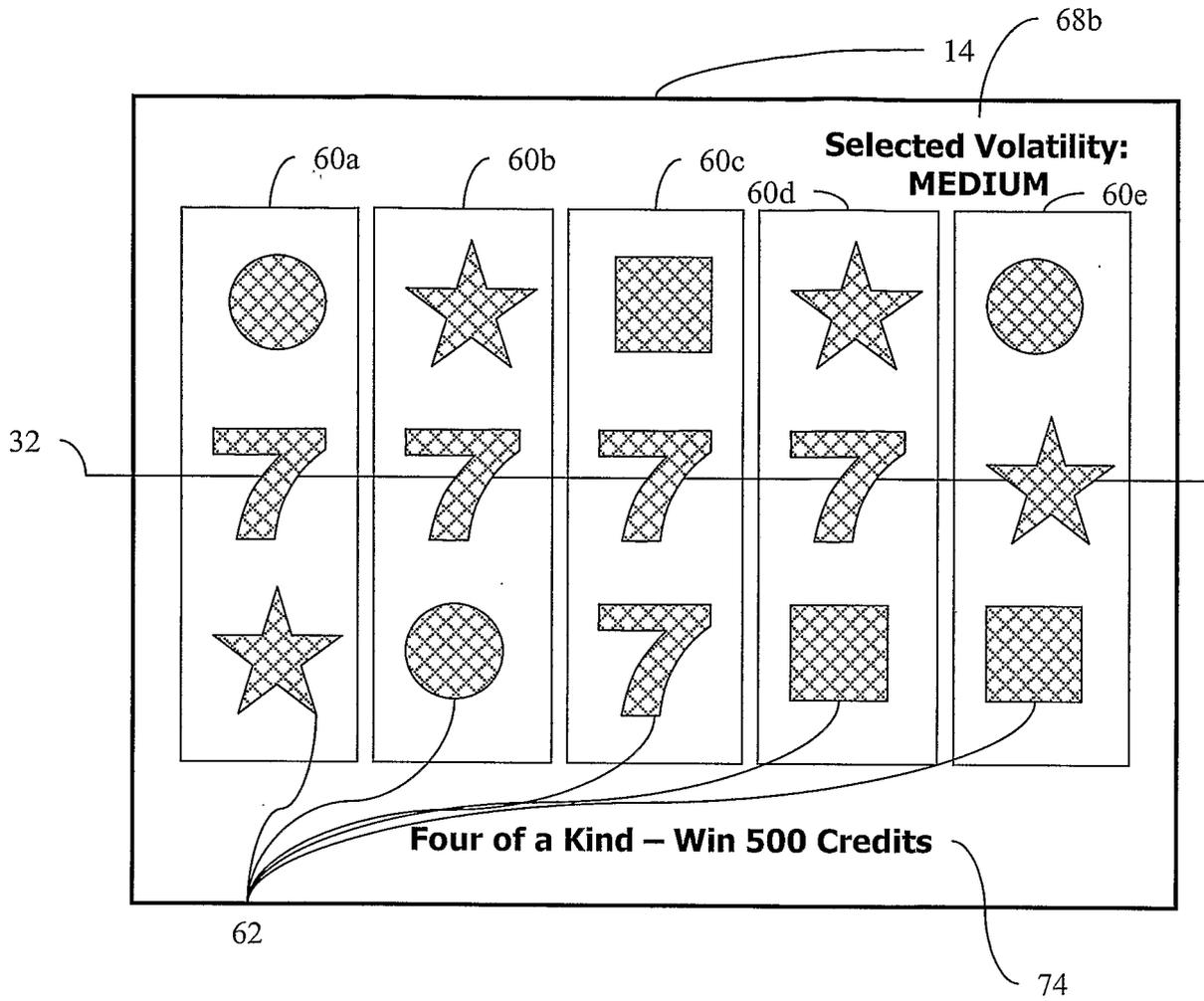


FIG. 5

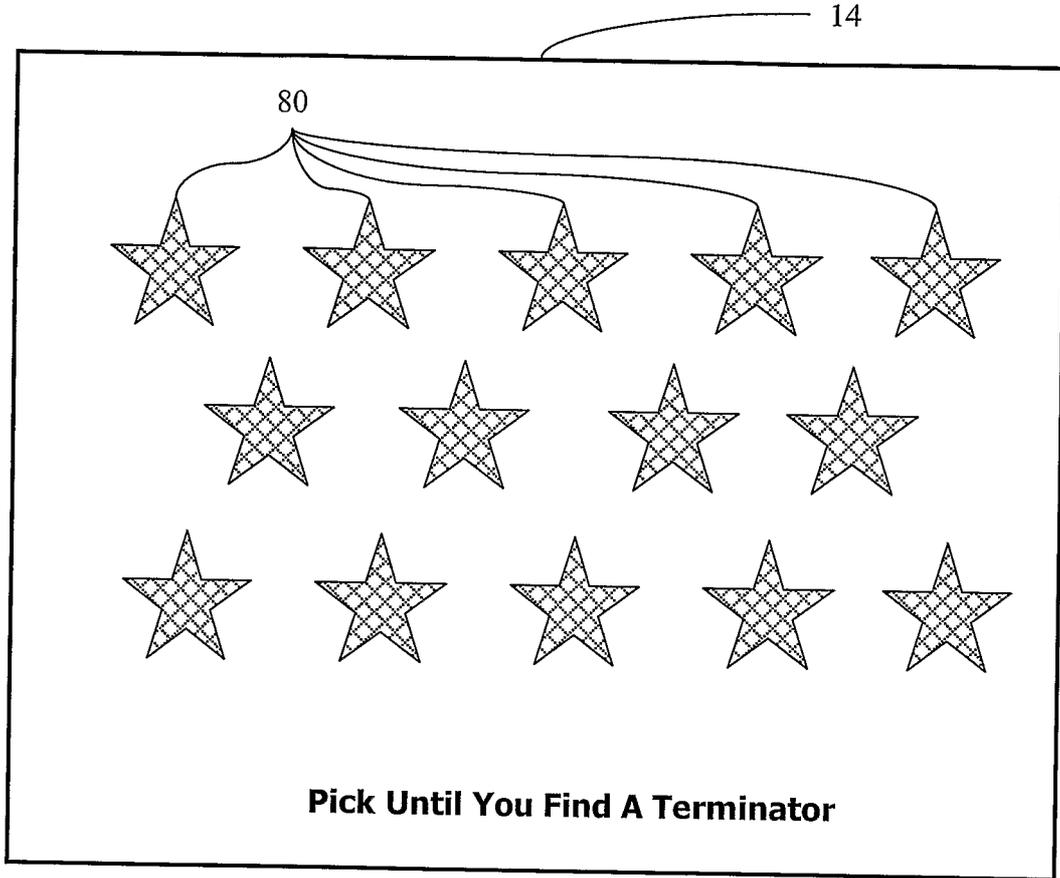


FIG. 6

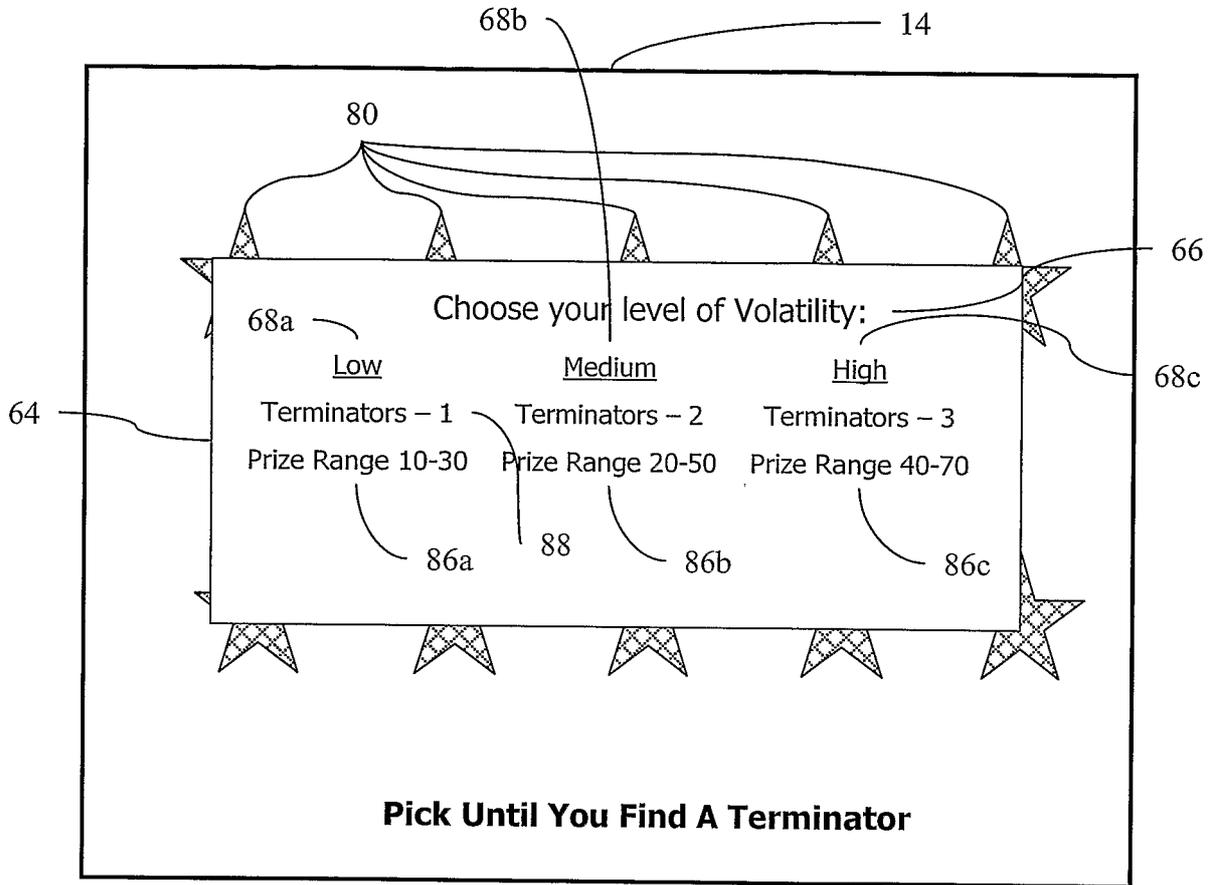


FIG. 7

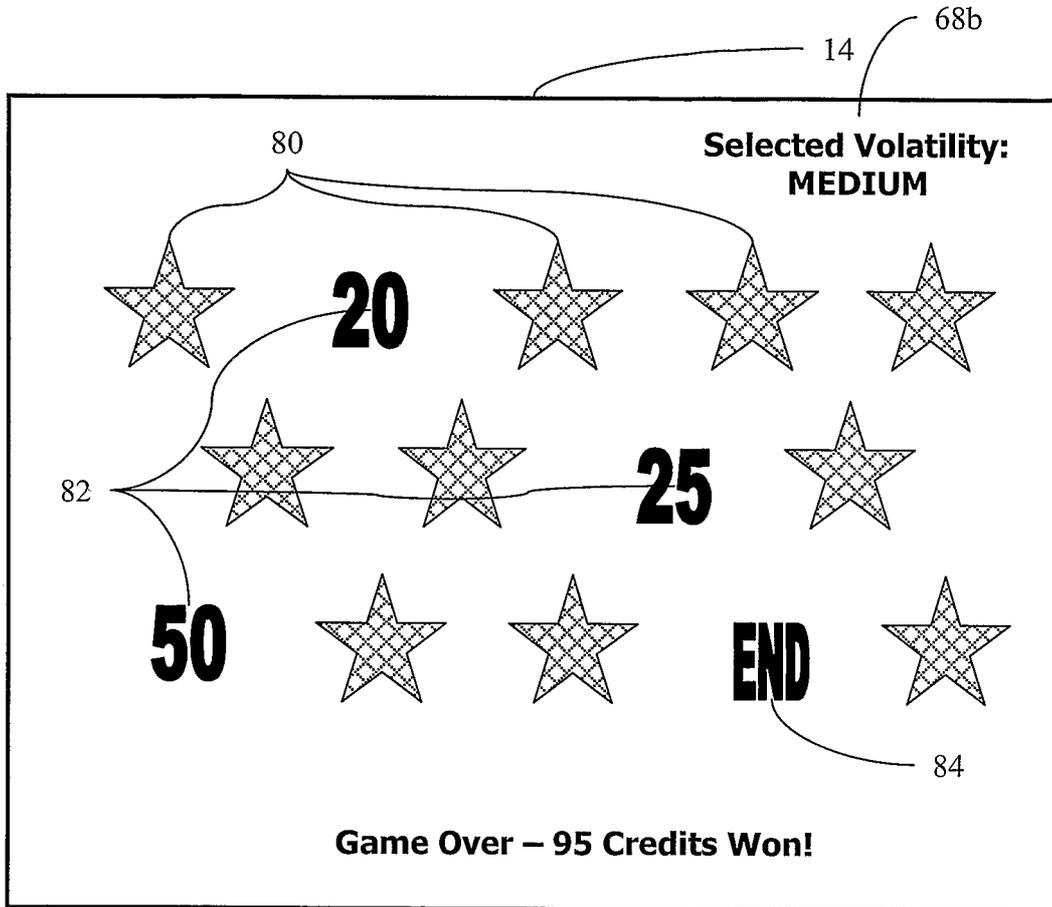


FIG. 8

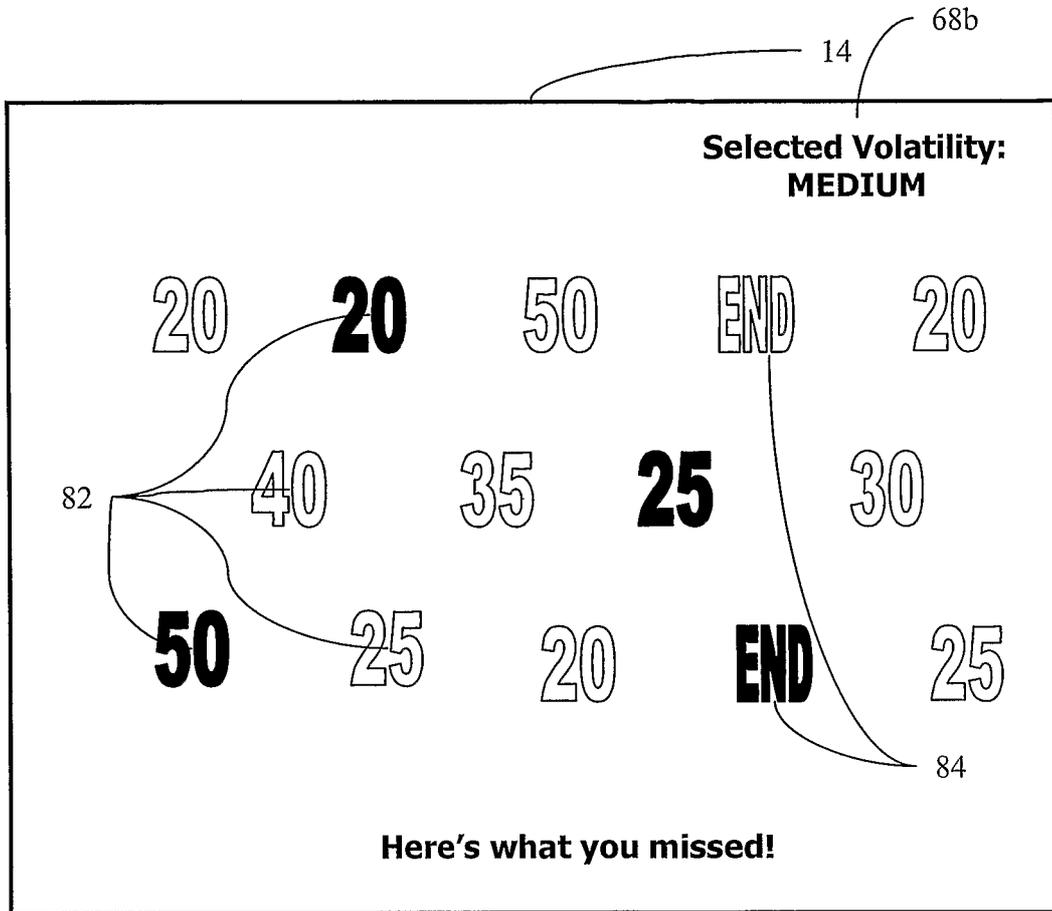


FIG. 9

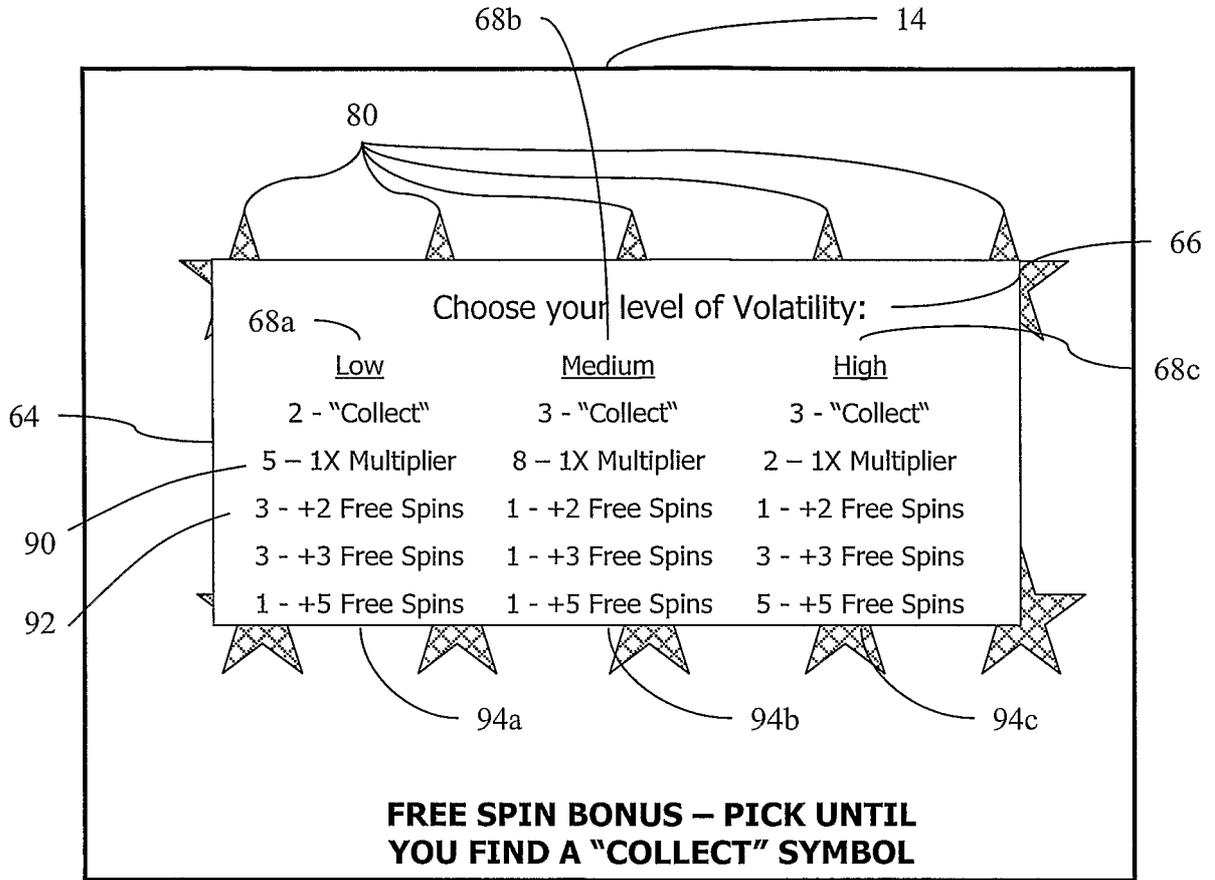


FIG. 10

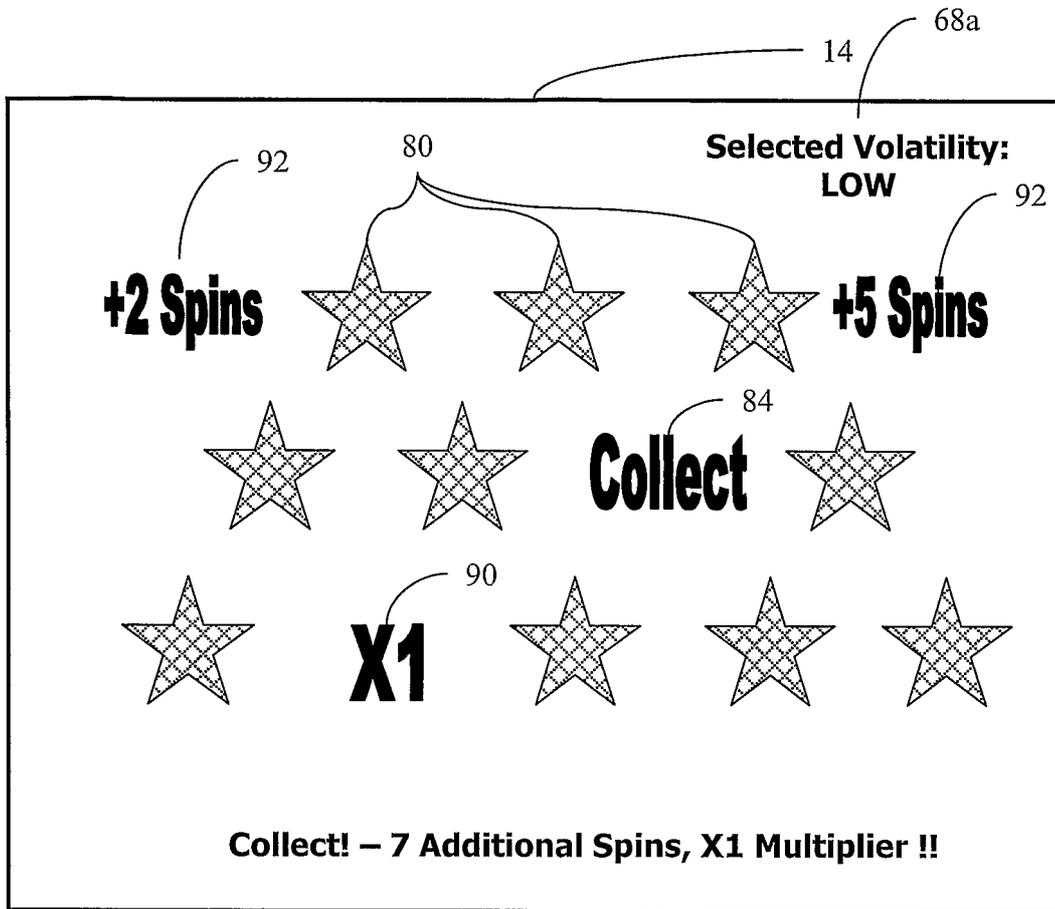


FIG. 11

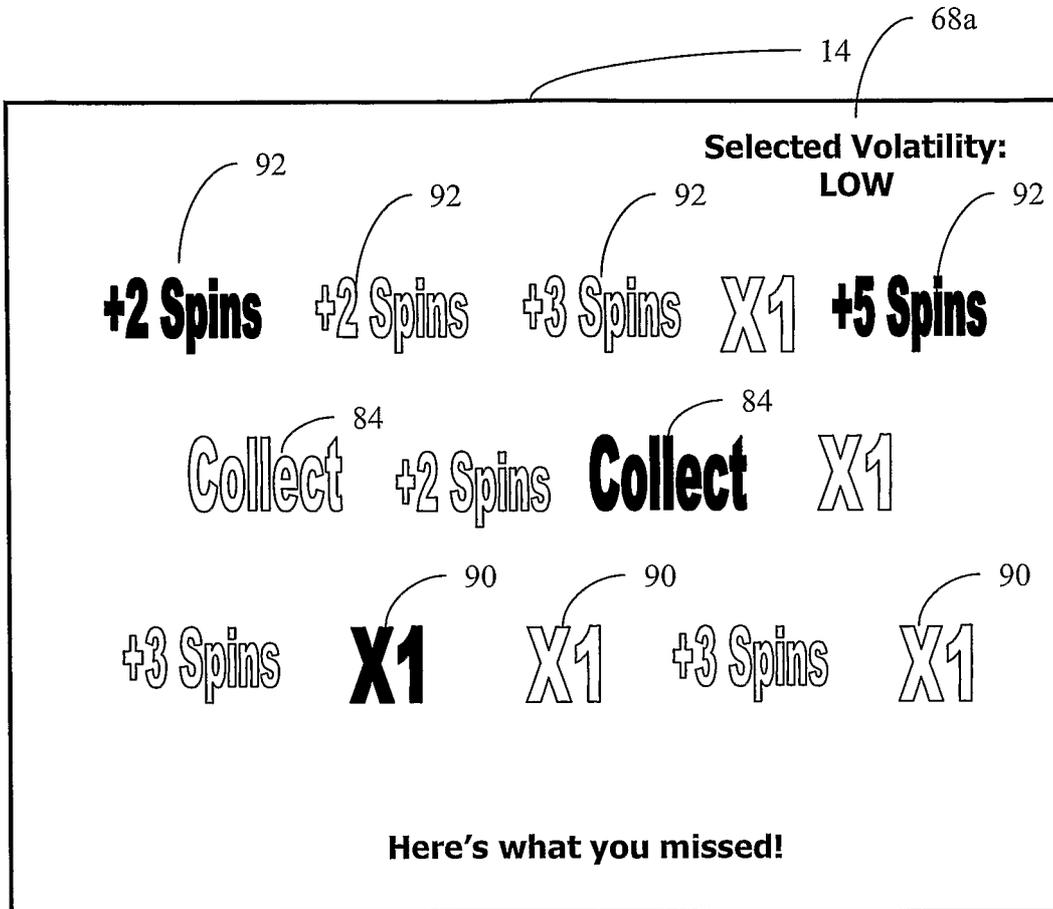


FIG. 12

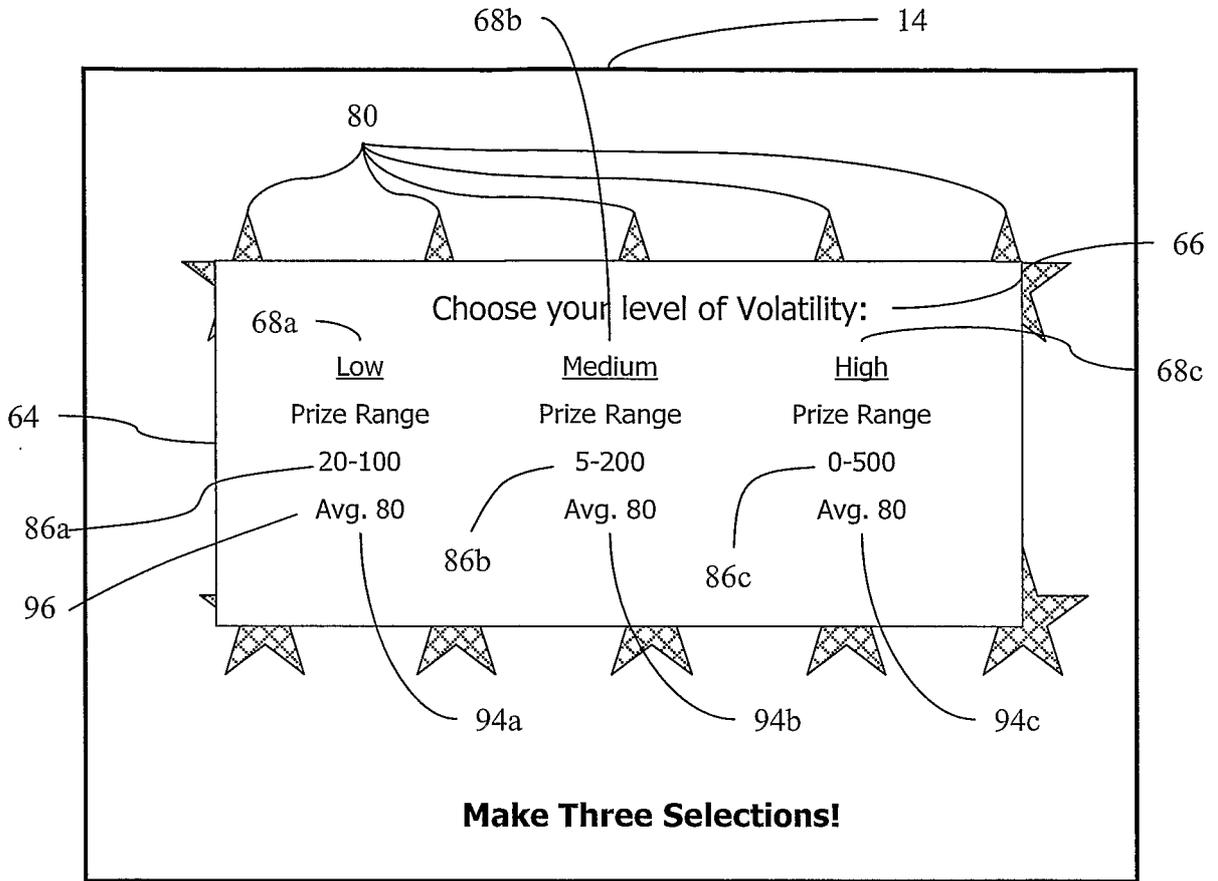


FIG. 13

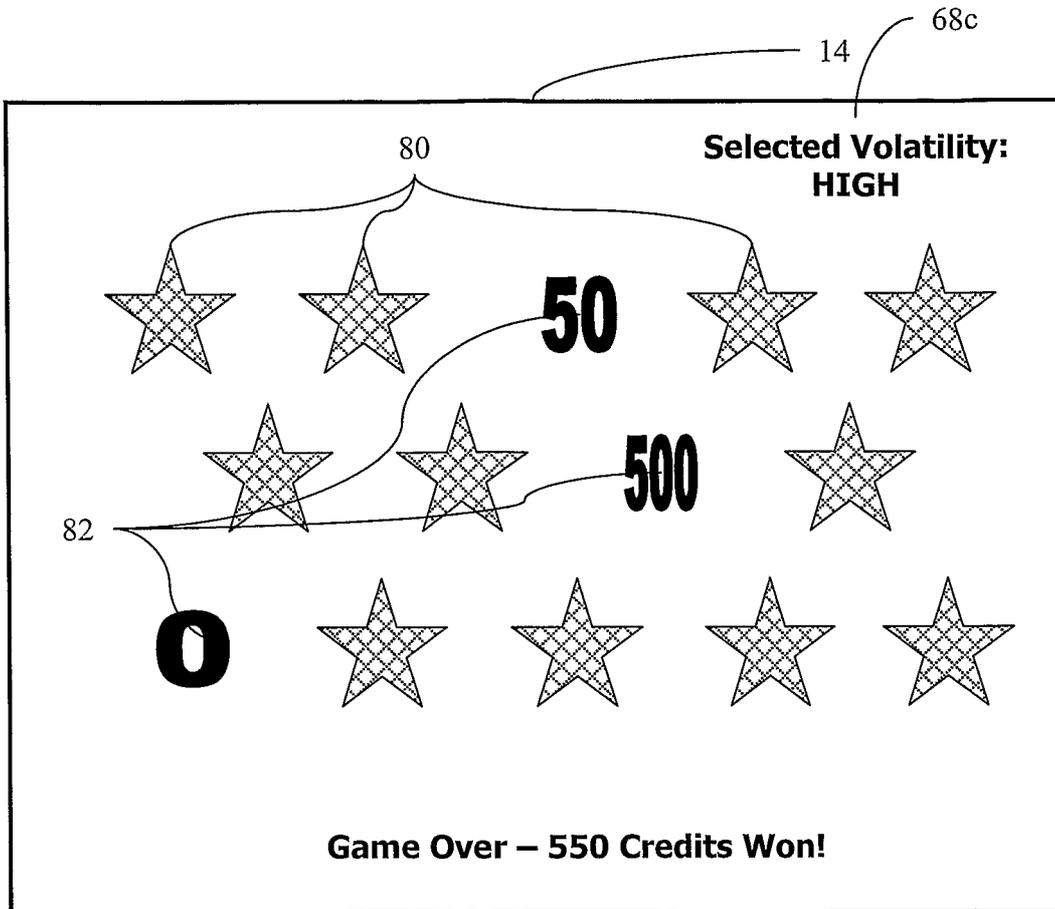


FIG. 14

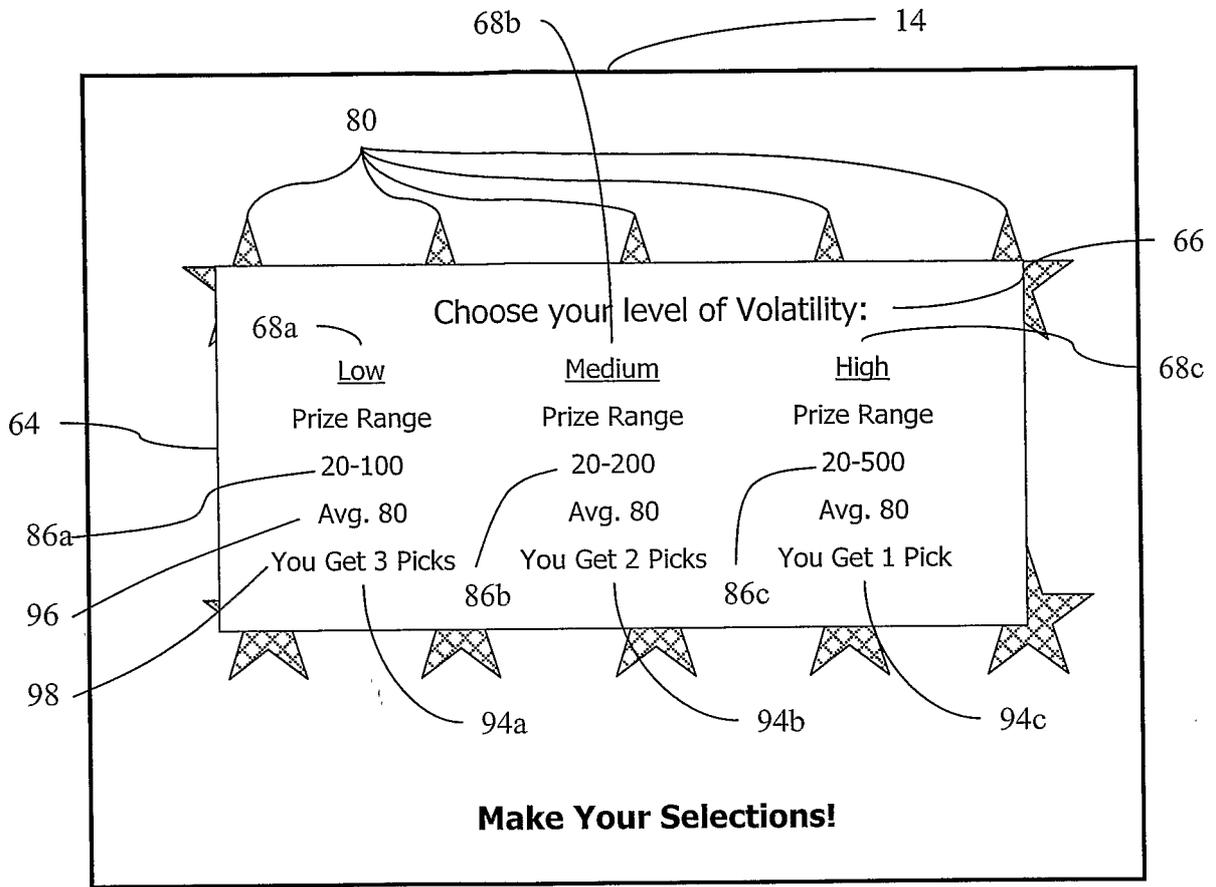


FIG. 15

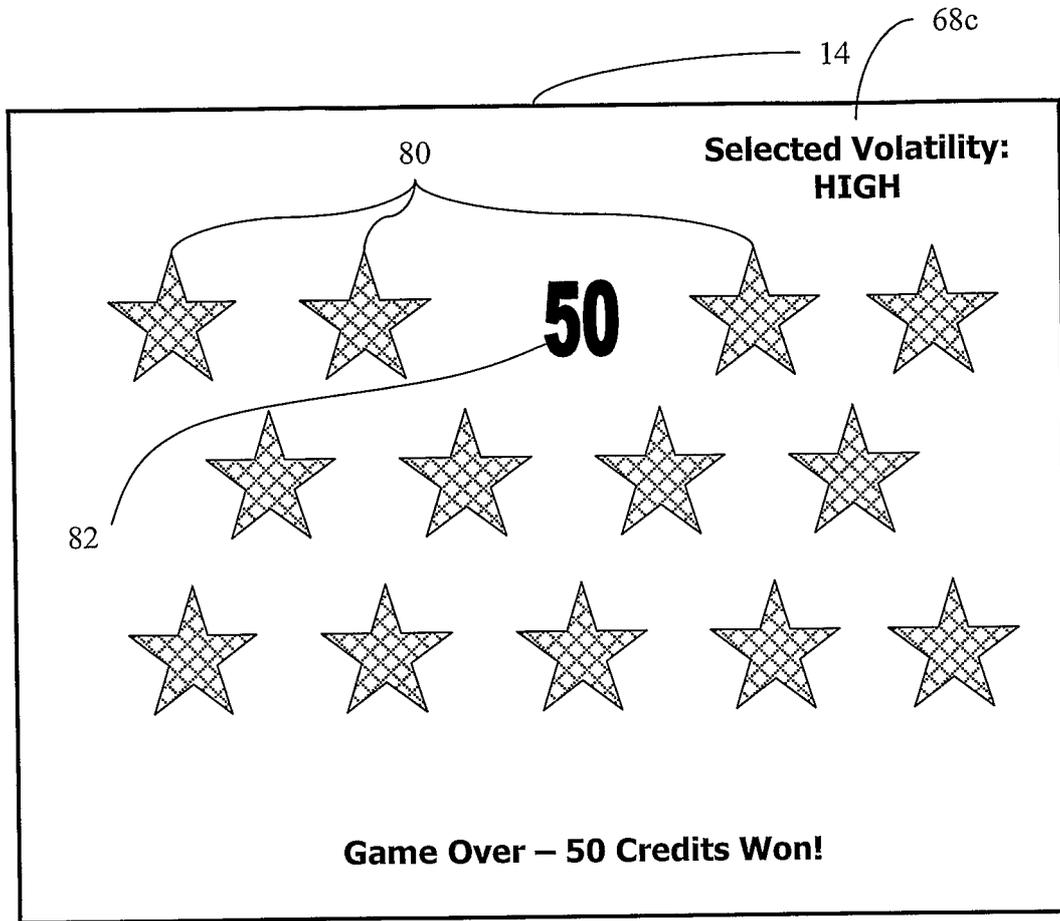


FIG. 16

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/23990

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **A63F 13/00**(2006.01)

USPC: 463/21

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 463/21, 16-20

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
USPAT, USPGPUB, EPO, JPO, IBM_TDB, DERWENT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,068,552 A (WALKER et al) 30 May 2000 (30.05.2000), entire document.	1-20
X	U S 2005/0043092 A 1 (GAUSELMANN) 24 February 2005 (24.02.2005), entire document.	1-20

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:

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"E" earlier application or patent published on *OP* after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

18 September 2006 (18.09.2006)

Date of mailing of the international search report

3th October 2006

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