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(54) **Gaming machine pathways with unpredictable outcome**

(57) A gaming machine 10 has a display 14 and a game controller arranged to control images of symbols displayed on the display 14. The game controller is arranged to play a game 16 in which at least one random event is caused to be displayed on the display 14. If a predefined winning event occurs, the machine 10 awards a prize. When a game 16 played results in a feature being awarded, to arrive at a determination of a result of the feature, the controller selects a pathway having a number of steps, each step relating to a special outcome, with the number of steps taken along the pathway varying randomly from one feature to the next.

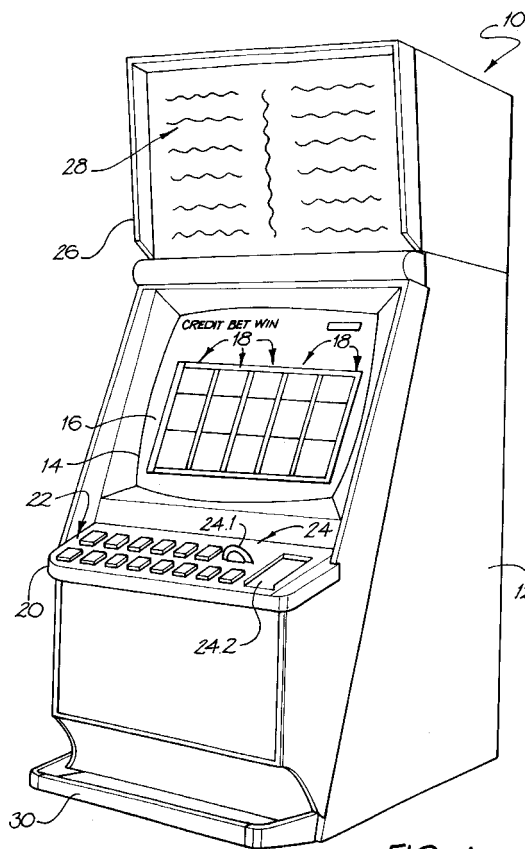


FIG. 1

Description

[0001] This invention relates to a gaming machine. More particularly, the invention relates to a gaming machine and to an improvement to a game played on such a gaming machine.

[0002] Players who regularly play gaming machines quickly tire of particular games and therefore it is necessary for manufacturers of these machines to develop innovative game features which add interest to the games. In so doing, it is hoped to keep players amused and therefore willing to continue playing the game as well as to attract new players.

[0003] Also, with the growth that has occurred in the gaming machine market, there is intense competition between manufacturers to supply various existing and new venues. When selecting a supplier of gaming machines, the operator of a venue will often pay close attention to the popularity of various games with their patrons. Therefore, gaming machine manufacturers are keen to devise games and/or game features which are popular with the players as a mechanism for improving sales, retaining customers and attracting new customers.

[0004] According to the invention, there is provided a gaming machine having a display means and a game control means arranged to control images of symbols displayed on the display means, the game control means being arranged to play a game in which at least one random event is caused to be displayed on the display means and, if a predefined winning event occurs, the machine awards a prize, wherein, when a game played results in a feature being awarded, to arrive at a determination of a result for the feature, the control means selects a pathway having a number of steps, each step relating to a special outcome, with the number of steps taken along the pathway varying randomly from one feature to the next.

[0005] With the provision of these pathways, it is unnecessary to fix a feature outcome according to a pathway selected. Accordingly, although the pathway is fixed once the feature occurs, the outcome of that feature is still not predictable because it remains unknown how far down the pathway that feature will proceed.

[0006] The use of pathways is particularly advantageous where a random feature is awarded. Such random features occur, for example, when a series of free games is awarded and the results of those free games are random. In such free games, special outcomes may occur where bonus prizes are awarded. These special outcomes may, for example, result from the occurrence of special symbols which, when acted on by a player of the game, are converted into the awarding of the special outcome being a bonus credit prize, a bonus feature or a jackpot symbol. The jackpot symbols may need to be accumulated so that, when a predetermined number of the jackpot symbols have been accumulated, a jackpot prize is awarded.

[0007] In another embodiment of the invention, the feature event may comprise a number of special outcome selections available to the player. The player may be prompted to make a selection from one of the special outcome selections whereafter, if the selection results in a positive outcome, the player may be offered another opportunity to select a further special outcome, and so on until a number of steps have been taken along the pathway or a negative outcome results. The special outcome selection may be based on steps taken along a pathway which may be randomly selected from a set of pathways by the control means.

[0008] A set of pathways may be associated with each bet. Any number of pathways may constitute each set. The pathways may be weighted so that those associated with larger bets provide an improved probability of obtaining larger prizes than the pathways associated with smaller bets.

[0009] Further, each pathway may have a maximum number of steps that can be taken down the pathway. For example, all the pathways in the set may be fifty steps long and, if the fiftieth step is reached, the gaming machine will not continue. Instead, the pathways may be of indefinite lengths where, if more than a predetermined number of steps down the pathway have been taken, thereafter each step along the pathway will provide a fixed, low credit prize. It will be appreciated that, in general, the chances of reaching such a large number of steps down a pathway are extremely small.

[0010] In addition, there may be a minimum number of steps to be taken down a pathway in order to provide encouragement to the player. As an example, at least three steps may be taken down a pathway during the playing of the feature.

[0011] Still further, certain of the special outcomes may be collected towards a further event such as the awarding of a progressive jackpot prize. It will therefore be appreciated that, if the player succeeds in getting far enough down the pathway, the player will have a good chance of having collected enough of the special outcomes to win the progressive prize.

[0012] The invention is now described by way of example with reference to the accompanying diagrammatic drawings in which:-

Figure 1 shows a perspective view of a gaming machine, in accordance with the invention;

Figure 2 shows a block diagram of a control circuit of the gaming machine;

Figure 3 shows a flow chart of a first embodiment of a game played on the gaming machine of Figure 1;

Figure 4 shows a table of a part of each of a number of pathways used in a second embodiment of a game played on the gaming machine; and

Figure 5 shows a flow chart of the second embodiment of the game.

[0013] In Figure 1, reference numeral 10 generally designates a gaming machine, including a game, in accordance with the invention. The machine 10 includes a console 12 having a video display unit 14 on which a game 16 is played, in use. The game 16 is, conveniently, a spinning reel game which simulates the rotation of a number of spinning reels 18 but the invention is not limited to spinning reel games. A midtrim 20 of the machine 10 houses a bank 22 of buttons for enabling a player to play the game 16. The midtrim 20 also houses a credit input mechanism 24 including a coin input chute 24.1 and a bill collector 24.2.

[0014] The machine 10 includes a top box 26 on which artwork 28 is carried. The artwork 28 includes paytables, details of bonus awards, etc. and may further include items, such as highlightable sections, associated with a feature awarded in the game 16

[0015] A coin tray 30 is mounted beneath the console 12 for cash payouts from the machine 10.

[0016] Referring now to Figure 2 of the drawings, a control means or control circuit 32 is illustrated. A program which implements the game and user interface is run on a processor 34 of the control circuit 32. The processor 34 forms part of a controller 36 which drives the screen of the video display unit 14 and which receives input signals from sensors 38. The sensors 38 include sensors associated with the bank 22 of buttons and touch sensors mounted in the screen of the video display unit 14. The controller 36 also receives input pulses from the mechanism 24 to determine whether or not a player has provided sufficient credit to commence playing. The mechanism 24 may, instead of the coin input chute 24.1 or the bill collector 24.2, or in addition thereto, be a credit card reader (not shown) or any other type of validation device.

[0017] Finally, the controller 36 drives a payout mechanism 40 which, for example, may be a coin hopper for feeding coins to the coin tray 30 to make a pay out to a player when the player wishes to redeem his or her credit.

[0018] The game 16, in accordance with the invention, uses fixed pathways of outcomes during a feature event. Examples of pathways, which are intended particularly for the second embodiment of the invention to be described below but which also could be used in the first embodiment, are shown in Figure 4 of the drawings and are designated generally by the reference numeral 50.

[0019] It will be appreciated that, in the case of a spinning reel game having a number of lines which can be bought and where multiple credits can be bet per line, various bets can be made by a player. The more lines bought and number of credits bet per line, the higher the wager made by the player.

[0020] A set of pathways 50 is associated with each bet. Any number of pathways constitutes each set. The reason for having a number of pathways 50 associated with each bet is to increase the unpredictability of the

outcome. Typically, fifty pathways 50 may be associated with each bet. Each pathway 50 is constituted by a number of steps.

[0021] In the first embodiment of the invention, the flowchart of which is shown in Figure 3 of the drawings, each pathway 50 has a length of fifty steps. For the embodiment of the invention shown in Figure 5 of the drawings, each pathway has a length exceeding one hundred steps.

[0022] Thus, it will be appreciated that the four pathways shown in Figure 4 of the drawings show only a part of the total length of each of those four pathways and are but a small sample of the total number of pathways associated with the game 16. Thus, each pathway 50 shown in Figure 4 of the drawings only has the first twenty-five steps shown, not the full number of steps of each pathway 50.

[0023] The pathways 50 are used in a feature following a base game. The base game can be any suitable base game and need not be limited to a spinning reel game. However, for ease of reference the invention is described with reference to the base game being a spinning reel game having five reels 18.

[0024] In the embodiment of the invention of Figure 3 of the drawings, once a trigger condition has occurred in the base game, for example, the occurrence of three or more scatter symbols, a feature is triggered. The feature is a second screen feature. At the start of the feature a pathway 50 is randomly selected from one of the sets of pathways.

[0025] In the second screen feature, once a "Start Feature" button has been pressed in the bank 22 of buttons of the gaming machine 10, five treasure chests are displayed on the screen of the video display unit 14 and the player is invited to choose a treasure chest from the five displayed treasure chests. The player selects the treasure chest by touching it. The chosen treasure chest animates to reveal a first prize dictated by the pathway previously selected by the controller 36 of the gaming machine 10.

[0026] A random selection is then made by the controller 36 to determine whether or not to continue. If the answer is in the affirmative, the player is afforded a further chance to choose another treasure chest from a further set of five treasure chests. The treasure chest, once again, animates to reveal a prize at the second step or position along the pathway. This procedure continues until a decision has been made by the controller 36 not to continue or the end of the pathway has been reached.

[0027] Typically, for this embodiment of the invention a maximum limit to the number of steps down the pathway 50 which can be taken is enforced. Thus, as described above, each pathway 50 in the set has fifty steps and if the fiftieth step is reached by the gaming machine, the feature is regarded as completed and does not continue.

[0028] To serve as an encouragement to a player of this embodiment of the invention, there are a predetermined

mined minimum number of steps at the beginning of the pathway 50 that result in a positive outcome. In other words, once a pathway 50 has been selected there is a one hundred per cent chance that at least three steps along the pathway will be taken. This is shown in detail in Figure 3 of the drawings.

[0029] Referring now to Figure 5 of the drawings, a second embodiment of the invention is described with reference to a modified version of the applicant's Queen of the Nile™ game.

[0030] For every different total amount bet in the Queen of the Nile game, a set of pathways 50 (once again, for example, fifty different pathways) is provided. The theoretical return to player percentage for each individual pathway 50 differs but, since the pathways 50 are randomly selected from the set when the feature is triggered, the overall expected return to player will be the average across all of the pathways 50 in the set associated with that particular bet. The set from which the pathway 50 is selected is governed by, and associated with, the size of the bet made by the player. The pathways are established such that, in the pathways associated with larger bets, there is a greater probability of winning larger prizes than in pathways associated with smaller bets.

[0031] The return to player percentage of the game is calculated as follows. Probabilities are calculated for each possible number of special symbols (being a Cleopatra symbol) appearing anywhere over the entire free games feature. Since the free games can also be re-triggered, the probabilities of getting from zero to one hundred special symbols are separately calculated then the probability of getting more than one hundred special symbols is also calculated.

[0032] For each bet, a set of fifty predetermined pathways 50 is developed which provide the separate outcomes for each special symbol during the free game feature up to a possible one hundred steps along the pathway 50. A fixed prize of a low number of credits, for example, five credits, is used once more than one hundred special symbols have appeared. As indicated above, the reason fifty pathways 50 are developed rather than just one is to avoid predictability of prizes for consecutive special symbols.

[0033] The prize outcome at any one position along the pathway 50 is dependent on the probability of getting the required number of special symbols necessary to reach that position on the pathway 50. In other words, the value of each of the prizes is weighted to the number of special symbol outcomes required in order to get those prizes.

[0034] In the Queen of the Nile game, there are four possible jackpots being a grand jackpot, a major jackpot, a minor jackpot and a mini jackpot. The probability of each jackpot being won is averaged over the fifty different pathways 50. These average probabilities are weighted to the bet made. Thus, for a bet of five hundred credits, the probability of achieving the jackpot is ap-

proximately twenty times greater than for a bet of twenty-five credits. The bonus prizes are also averaged over the fifty different pathways and weighted according to the bet. Thus, once again, the bonus prizes for five hundred credits are approximately twenty times greater than those for a bet of twenty-five credits. The bonus prizes that are revealed along the pathway when jackpot symbols are not revealed will be such that the average return to player contributed by the prizes across the set of pathways applicable to the bet is the same for every possible total bet. Because the position of the jackpot symbols in the pathways will be different for different bets to compensate for the change in probability of winning a jackpot, the bonus prizes have to be independently calculated for every pathway of every total bet.

[0035] In Figure 4 of the drawings it is shown that the chances of winning a jackpot prize are generally larger for the higher bet. If path A of the twenty-five bet pathway 50 is chosen then the player would need to have twenty-four special symbols occurring in the free game series before that player would win a progressive mini jackpot. If path B of the twenty-five bet pathway 50 were selected by the controller, only sixteen special symbols would be needed to win a minor jackpot and, after twenty-three special symbols had been spun up the mini jackpot would also be won.

[0036] In contrast, if the maximum number of bets has been made by the player, being five hundred credits, then, if path A of the five hundred credit pathway 50 were chosen by the controller 36, the player would win the mini jackpot after the fourth special symbol had been spun up. In the case of path B of the five hundred bet pathway 50, the mini jackpot would be awarded after five special symbols had been spun up, the minor jackpot after ten special symbols had been spun up and the major jackpot would be awarded after twenty-two special symbols had been spun up during the free game series.

[0037] While the invention has been described with reference to its application in a stand-alone gaming machine 10 it will be appreciated that it is equally applicable to gaming machines 10 of a linked system (not shown) where the gaming machines are linked via a network to a jackpot controller. Those skilled in the art will appreciate that, using such linked systems, a percentage of the turnover of each gaming machine linked to the network contributes to the jackpot pool from which the jackpot prizes, being the mini jackpot prize, the minor jackpot prize, the major jackpot prize and the grand jackpot prize, are paid.

[0038] It is a particular advantage of the invention that, even in the unlikely scenario that a player could memorise all the pathways 50 and recognise what path they were on during a free game feature, there would still be anticipation in knowing what prizes were coming and attempting to chase the special symbols that are required in order to win them. In addition, it is also an advantage of the invention that it provides a way to use

pathways without having to fix the feature outcome according to the path selected. This is achieved by having fixed pathways of outcomes which are used during a feature event but the number of steps which are taken down that pathway in any game varies randomly for each feature event. Thus, even though the pathways are fixed, once the feature event has been triggered the outcome of that feature event is still not predictable as it remains unknown how many steps down the pathway will be taken as the feature proceeds.

[0039] It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

Claims

1. A gaming machine having a display means and a game control means arranged to control images of symbols displayed on the display means, the game control means being arranged to play a game in which at least one random event is caused to be displayed on the display means and, if a predefined winning event occurs, the machine awards a prize, **characterised in that**, when a game played results in a feature being awarded, to arrive at a determination of a result of the feature, the control means selects a pathway having a number of steps, each step relating to a special outcome, with the number of steps taken along the pathway varying randomly from one feature to the next.
2. The gaming machine of claim 1 **characterised in that** the feature is a series of free games and the results of those free games are random and include the special outcomes.
3. The gaming machine of claim 1 **characterised in that** the feature comprises a number of special outcome selections available to the player.
4. The gaming machine of claim 3 **characterised in that** the player is prompted to make a selection from one of the special outcome selections whereafter, if the selection, as determined from the selected pathway, results in a positive outcome, the player is offered another opportunity to select a further special outcome until one of a fixed number of steps have been taken along the pathway and a negative outcome results.
5. The gaming machine of any one of the preceding claims **characterised in that** a set of pathways is associated with each bet.
6. The gaming machine of claim 5 **characterised in that** the pathways are weighted so that those associated with larger bets provide an improved probability of obtaining larger prizes than the pathways associated with smaller bets.
7. The gaming machine of any one of the preceding claims **characterised in that** each pathway has a maximum number of steps that can be taken down the pathway, following which the feature is regarded as concluded.
8. The gaming machine of any one of claims 1 to 6 **characterised in that** the pathways are of indefinite lengths where, if more than a predetermined number of steps down the pathway have been taken, thereafter each step along the pathway will provide a fixed, low credit prize.
9. The gaming machine of any one of the preceding claims **characterised in that** there are a minimum number of steps to be taken down a pathway which result in positive outcomes in order to provide encouragement to the player.
10. The gaming machine of any one of the preceding claims **characterised in that** certain of the special outcomes are collected towards a further event.

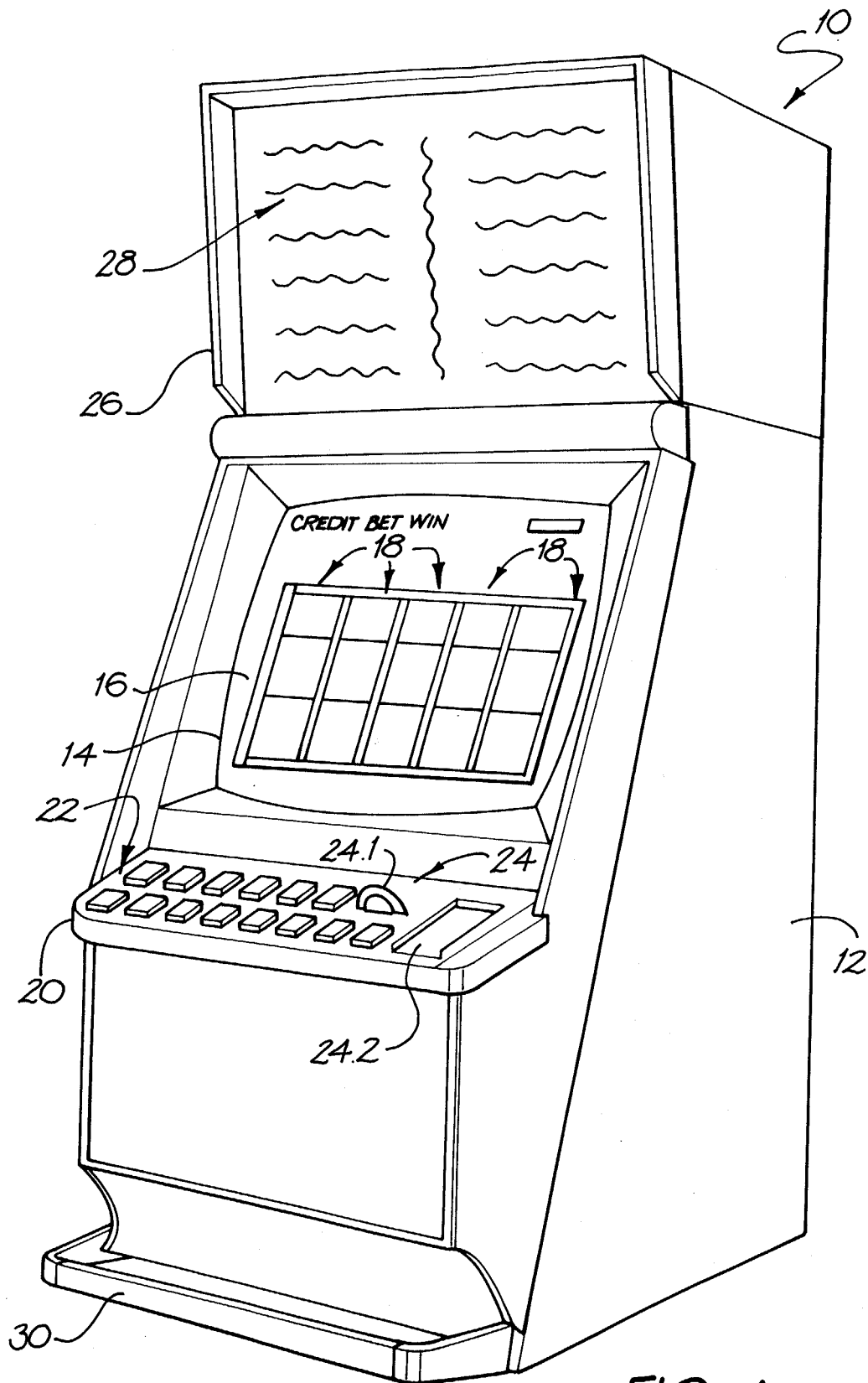


FIG. 1

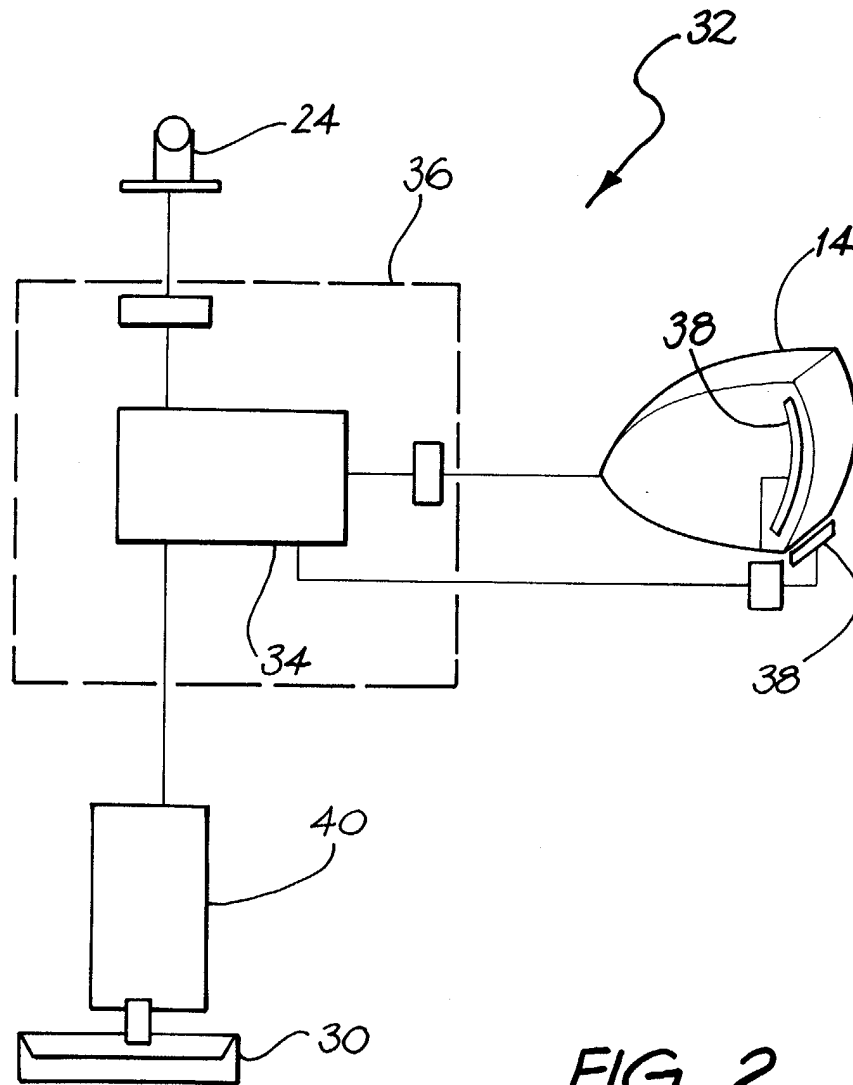


FIG. 2

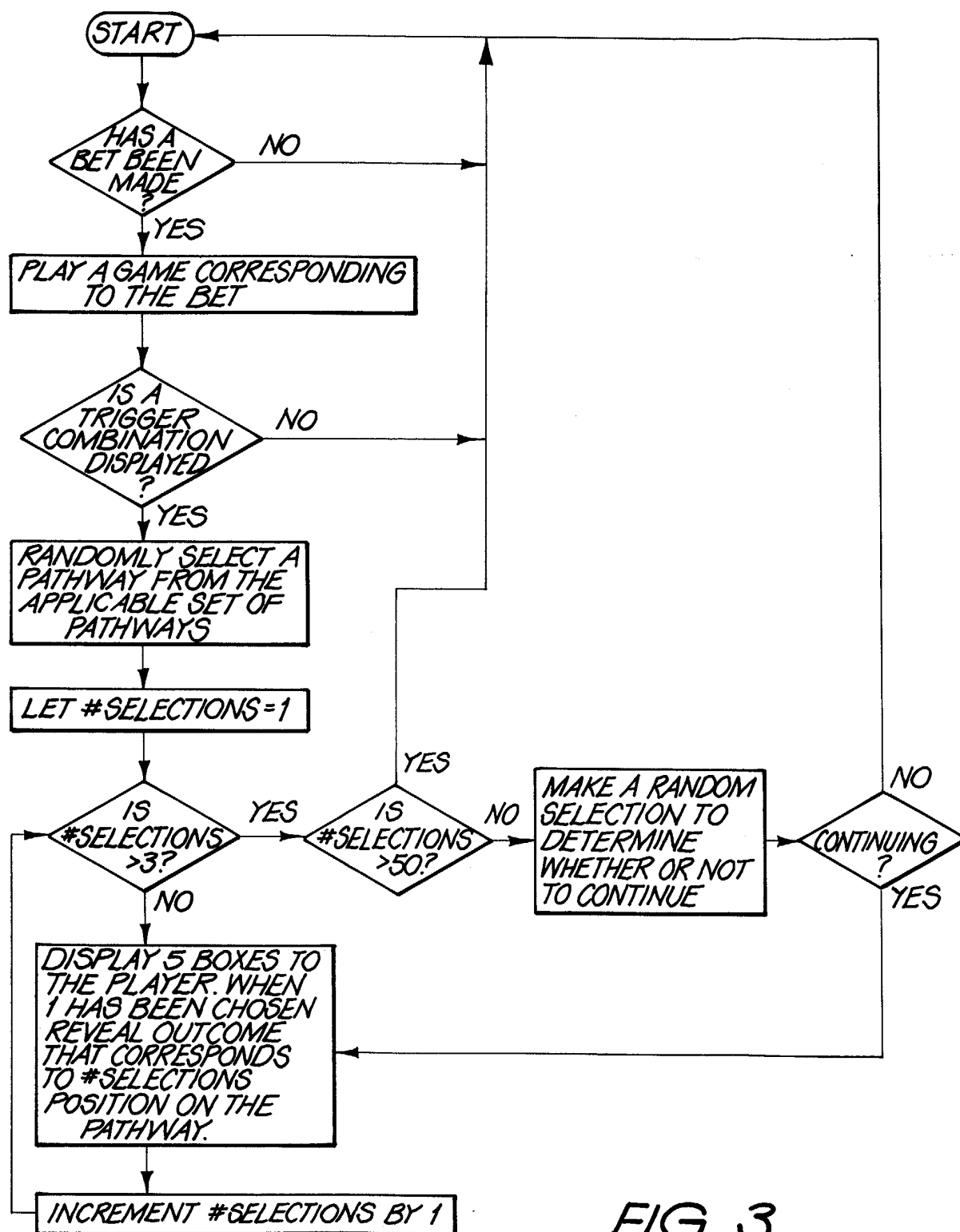


FIG. 3



NUMBER OF CLEOPATRAS	BET 25		BET 500	
	PATH A	PATH B	PATH A	PATH B
1	MINI	GRAND	2000	GRAND
2	MINI	500	MINI	2000
3	200	MAJOR	MINI	MINI
4	GRAND	MAJOR	MINI	MINI
5	MAJOR	200	2000	MINI
6	GRAND	GRAND	GRAND	2000
7	100	MINOR	MAJOR	MINOR
8	MAJOR	400	4000	4000
9	400	MINOR	MAJOR	MINOR
10	MINOR	100	6000	MINOR
11	MINOR	MINI	MINOR	MAJOR
12	200	MINI	MINOR	GRAND
13	100	100	2000	2000
14	300	300	GRAND	MAJOR
15	200	200	8000	8000
16	500	MINOR	2000	2000
17	100	300	6000	6000
18	300	400	4000	4000
19	200	200	10000	6000
20	400	100	8000	4000
21	500	300	4000	10000
22	200	200	2000	MAJOR
23	100	MINI	6000	6000
24	MINI	200	4000	4000
25	300	400	4000	4000

FIG. 4

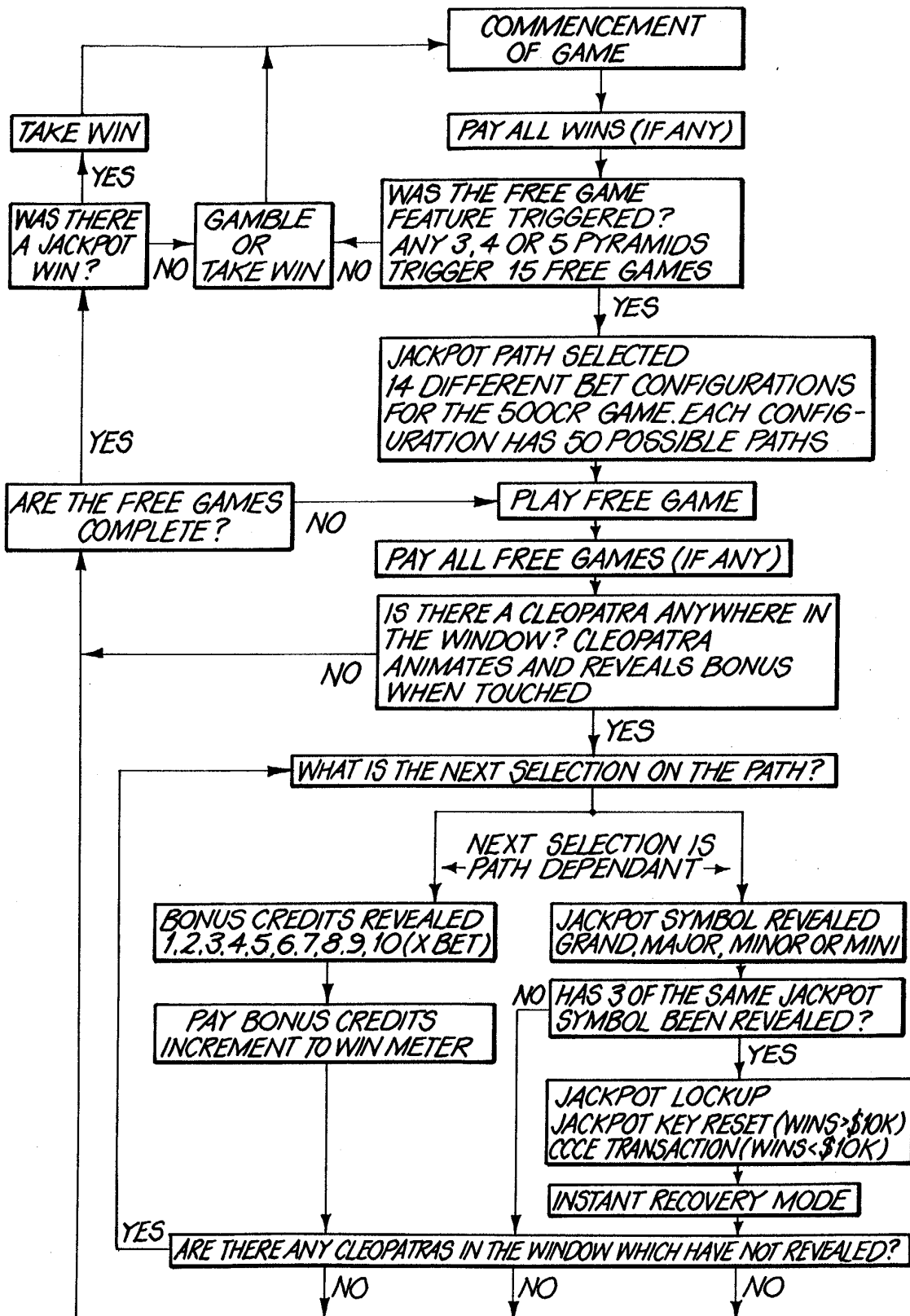


FIG. 5