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(19) **United States**(12) **Patent Application Publication****Seelig et al.**(10) **Pub. No.: US 2007/0293312 A1**(43) **Pub. Date: Dec. 20, 2007**(54) **GAMING DISPLAY WITH MOVEABLE INDICATOR AND METHODS OF USE**

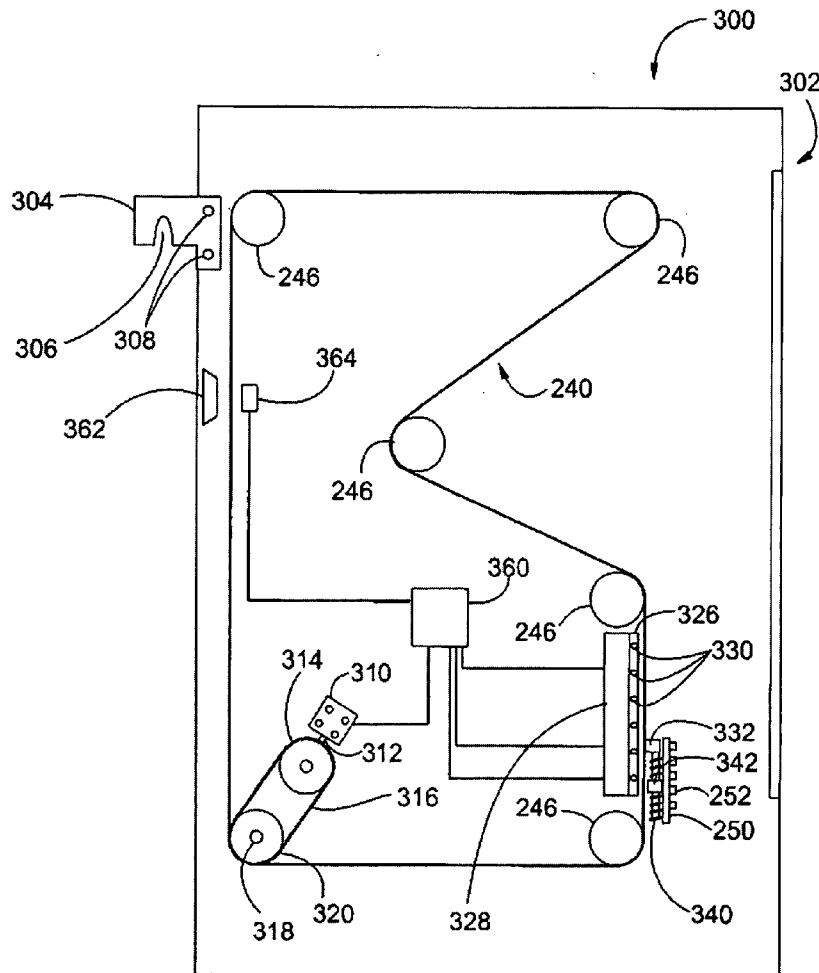
(60) Provisional application No. 60/824,136, filed on Aug. 31, 2006.

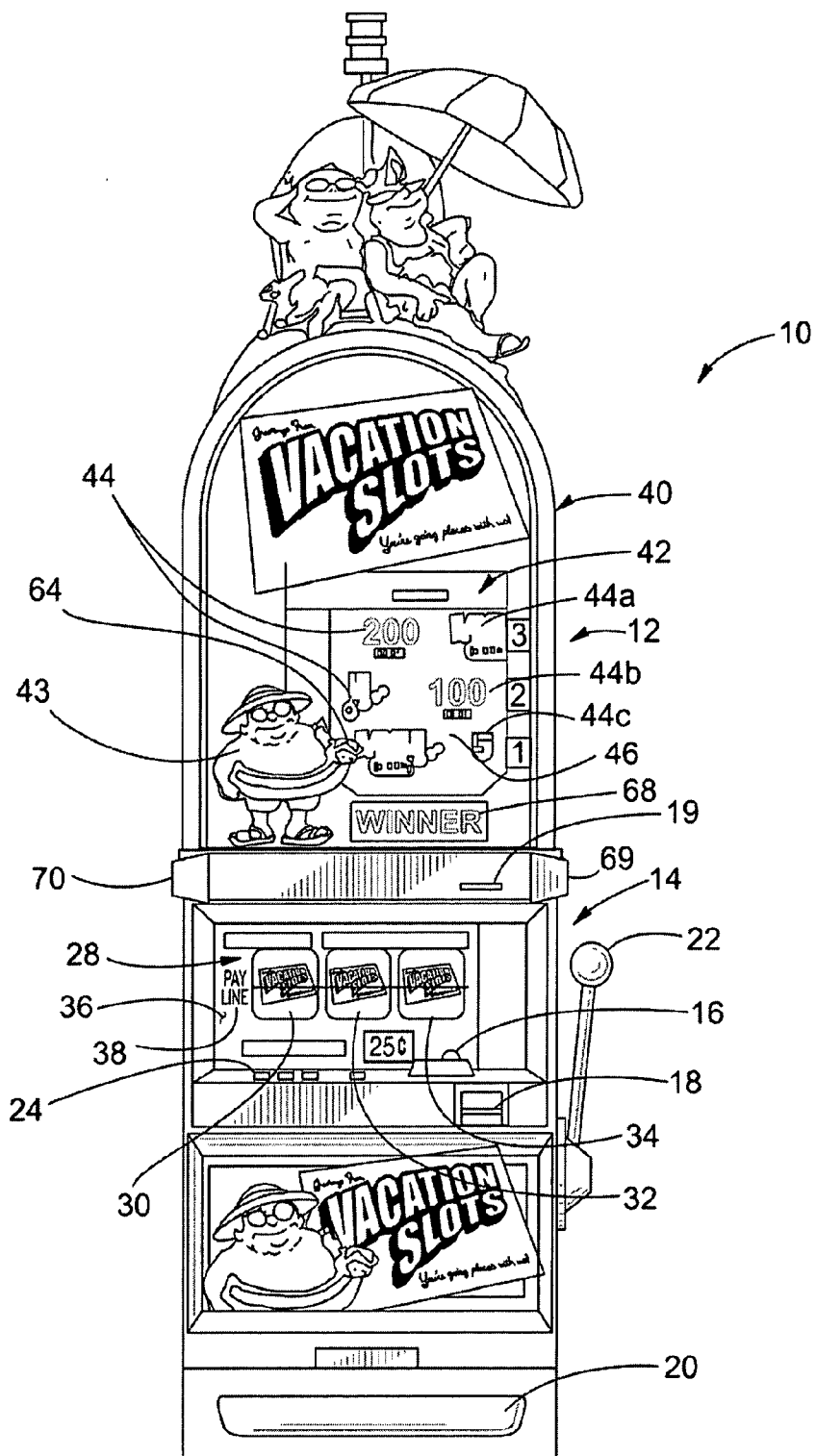
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A63F 9/24 (2006.01)(52) **U.S. Cl.** **463/30**Correspondence Address:
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RENO, NV 89570 (US)(57) **ABSTRACT**

A gaming apparatus includes a display device that has a display surface. The display surface can be moved and has indicia mounted on the display surface. A guide track holds the display surface. The guide track guides the shape of the display surface. A display device actuator is in communication with the display surface and moves the display surface. A controller is in communication with the display device actuator. The controller is configured to position the display surface such that at least one of the indicia appearing on the display surface conveys a game outcome. Several game embodiments using a guide track are disclosed.

(21) Appl. No.: **11/848,817**(22) Filed: **Aug. 31, 2007****Related U.S. Application Data**

(60) Continuation-in-part of application No. 10/806,636, filed on Mar. 23, 2004, which is a continuation-in-part of application No. 10/309,736, filed on Dec. 3, 2002, which is a division of application No. 09/894,198, filed on Jun. 27, 2001, now Pat. No. 6,537,152.





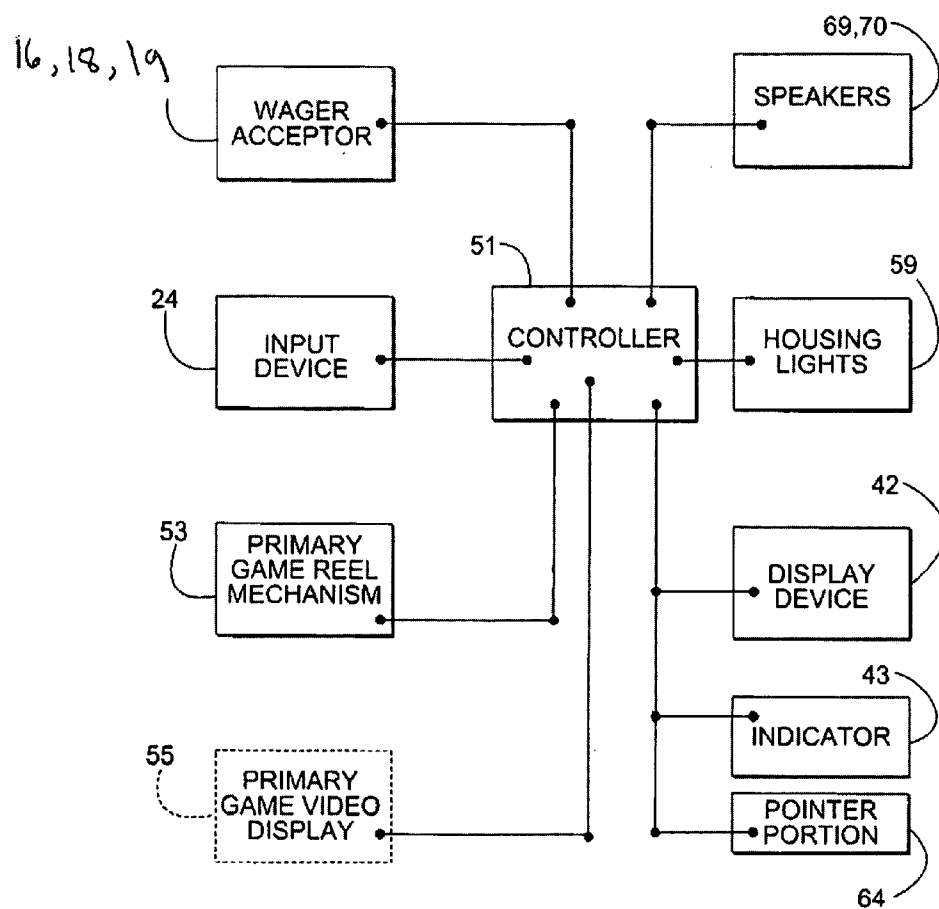


FIG. 1b

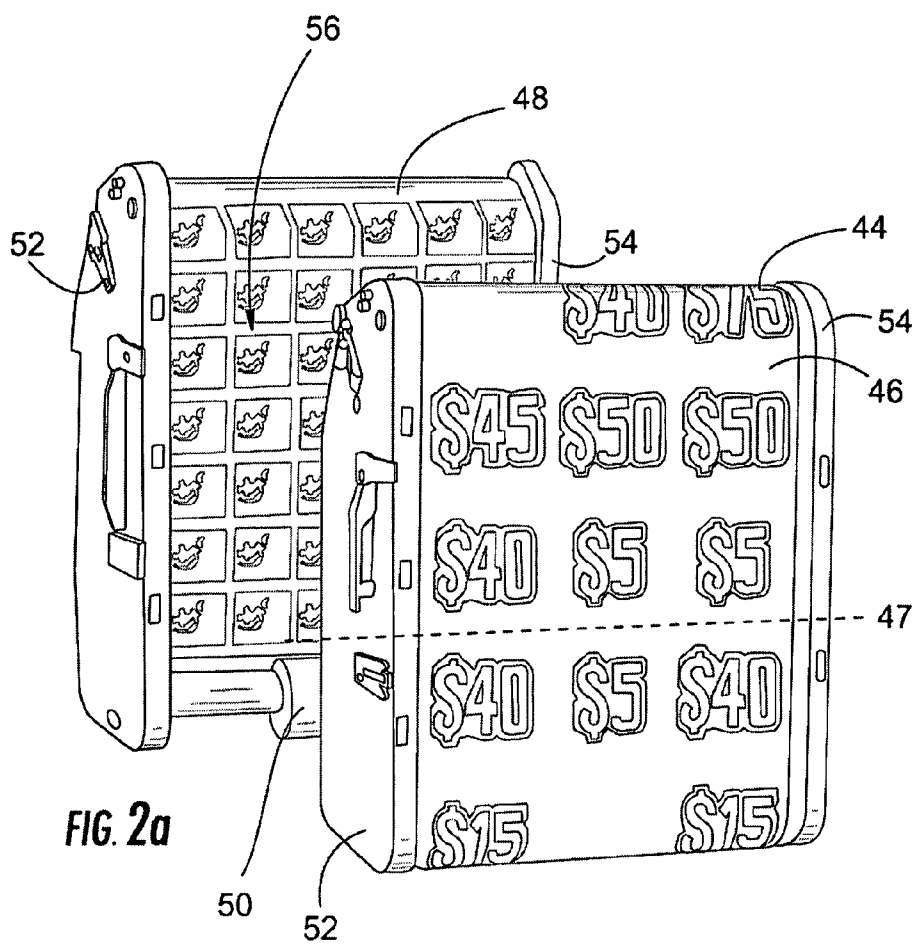


FIG. 2a

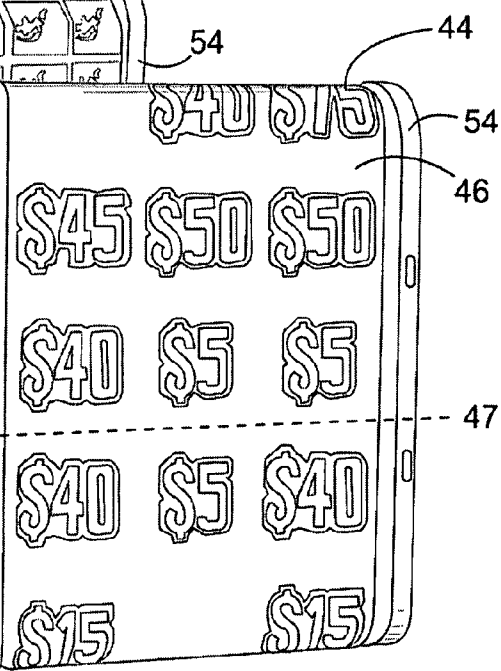


FIG. 2b

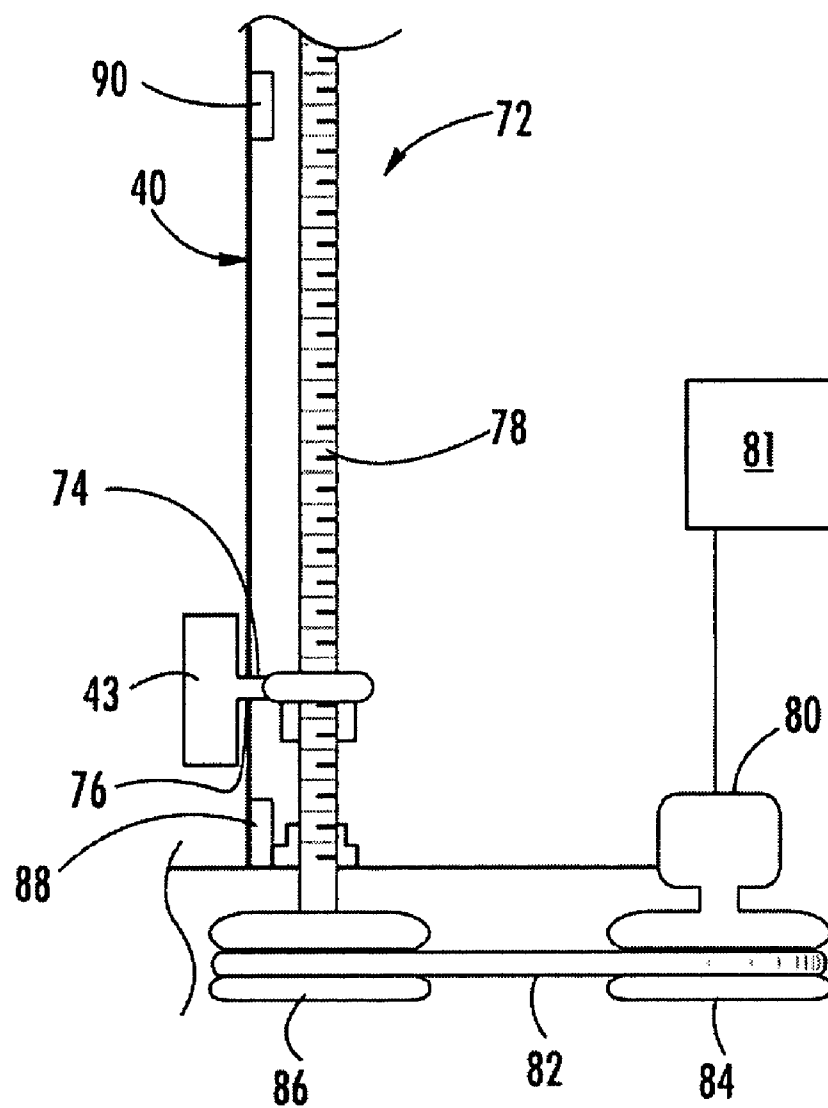


FIG. 3

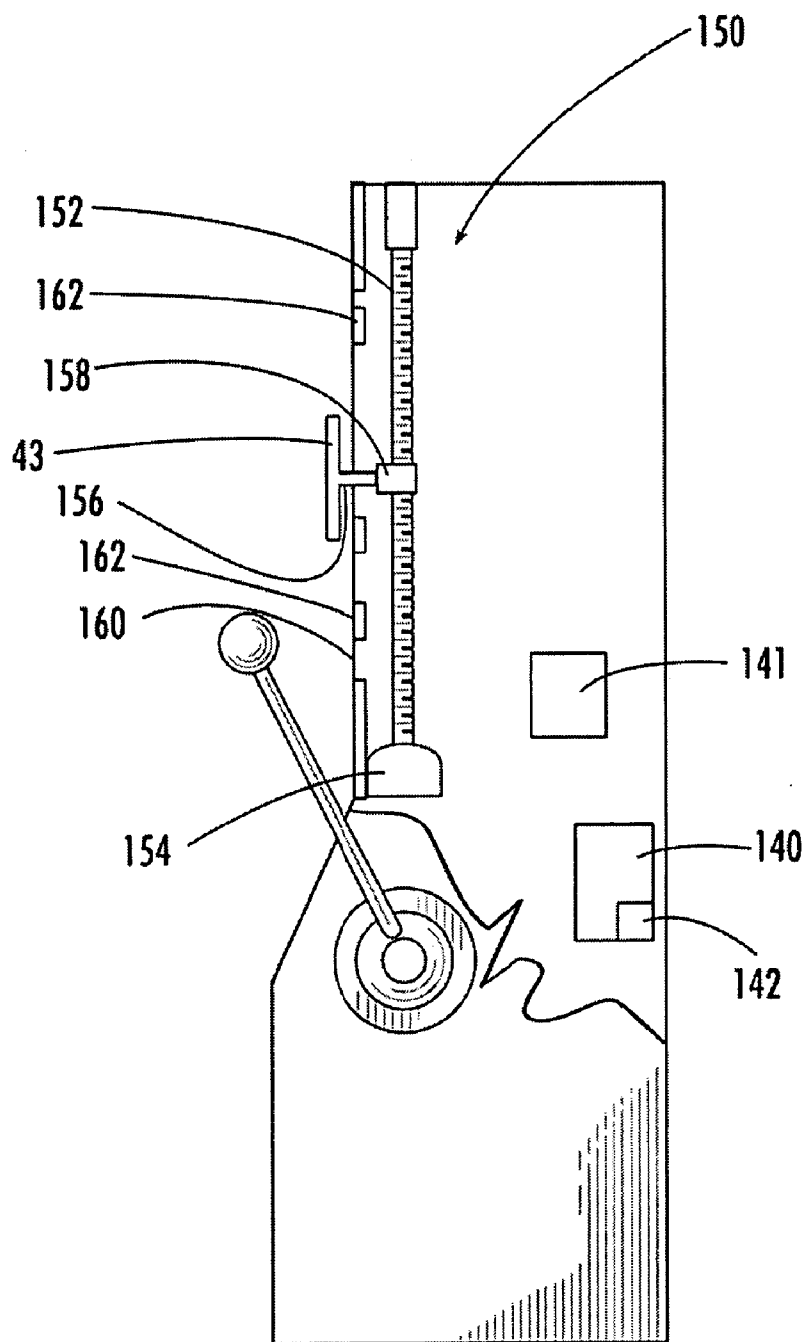


FIG. 4.

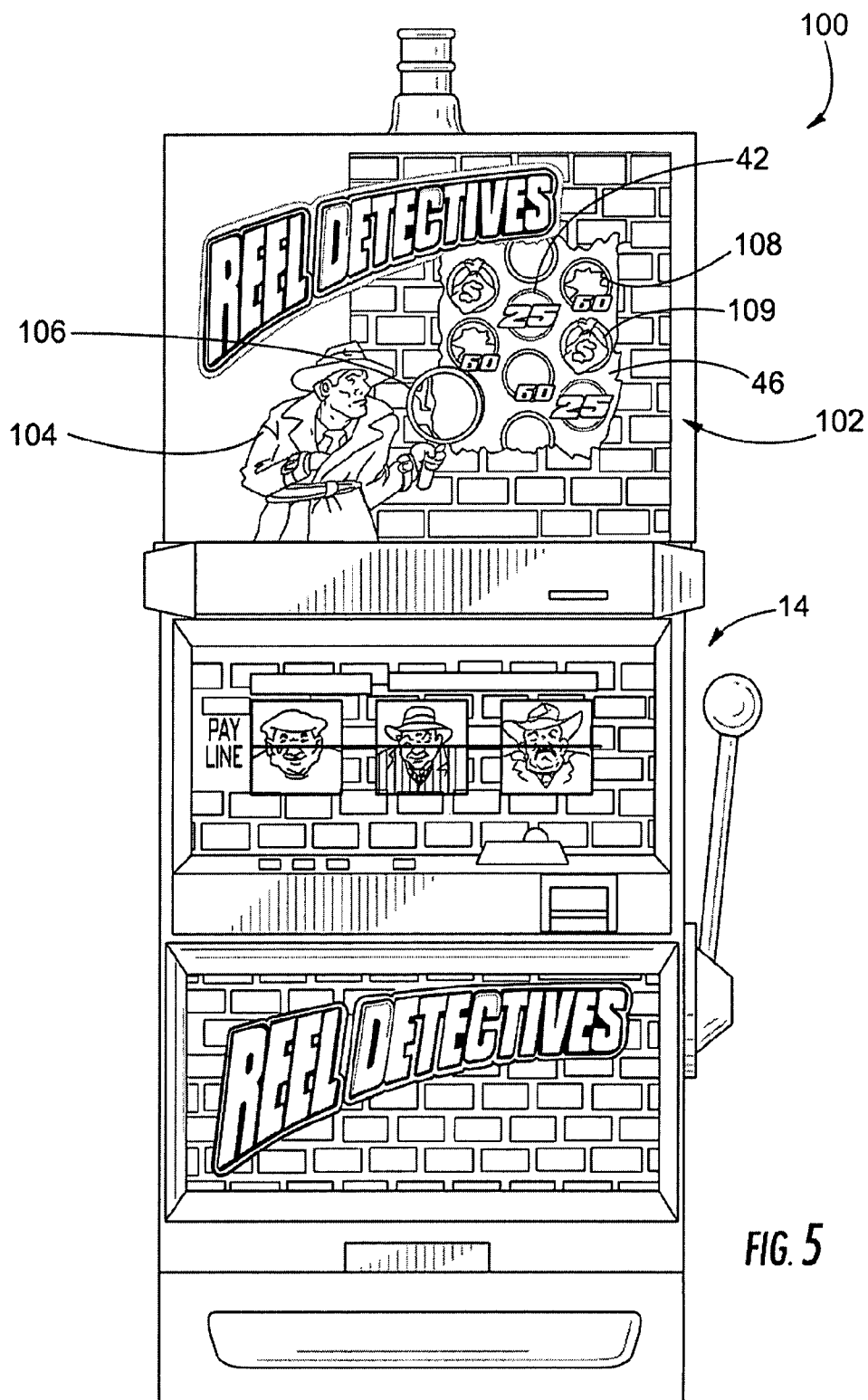
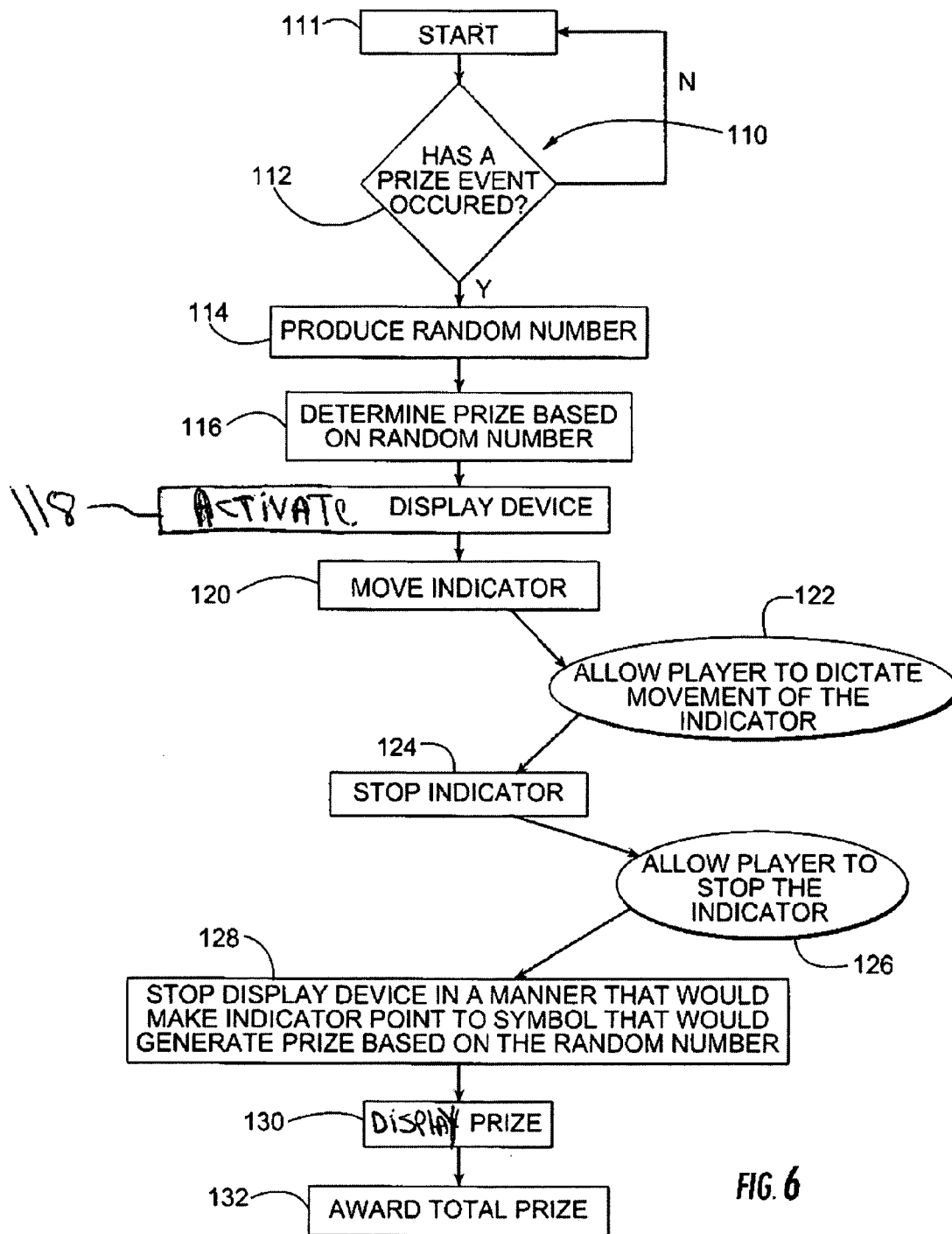


FIG. 5



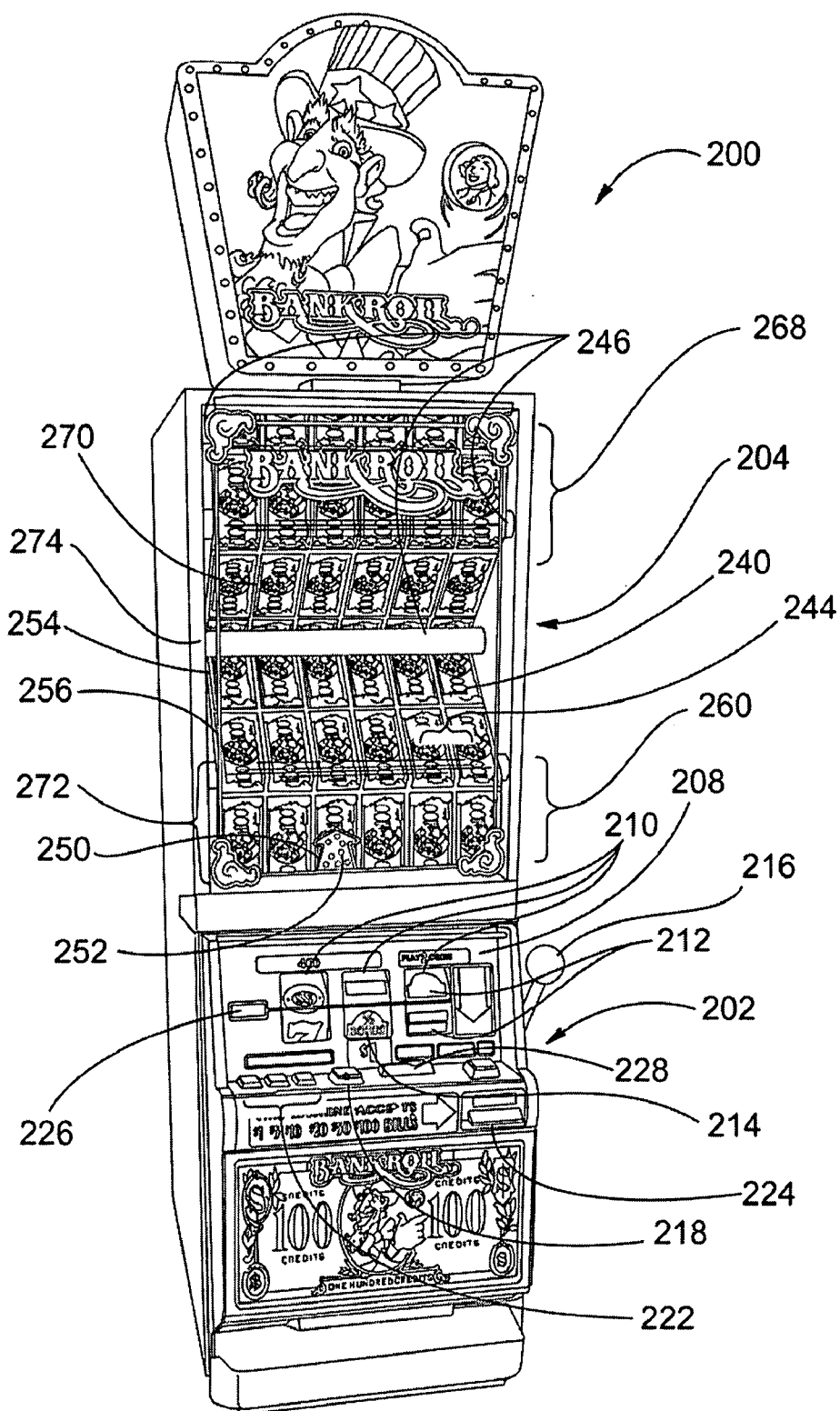


FIG. 7

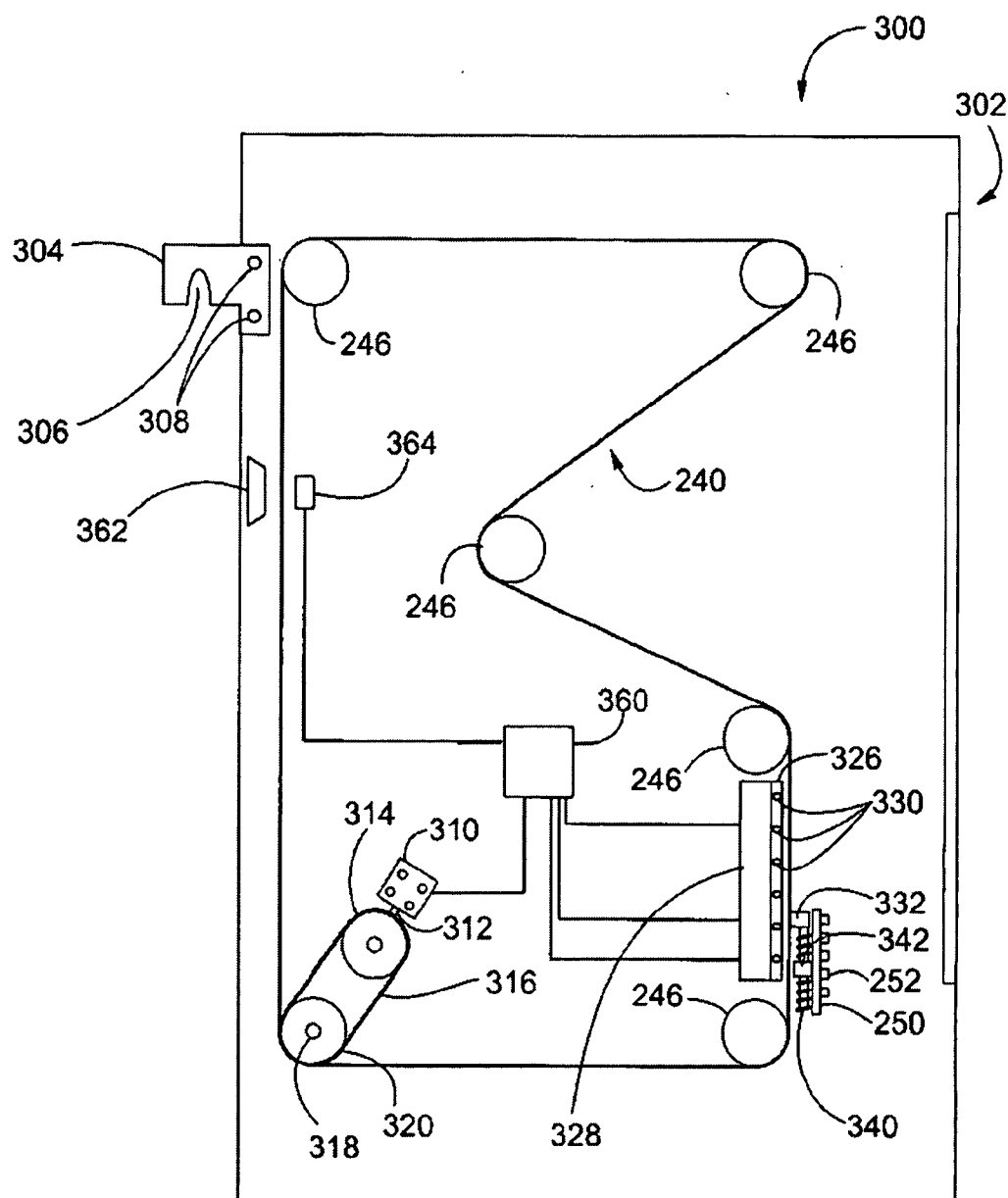


FIG. 8

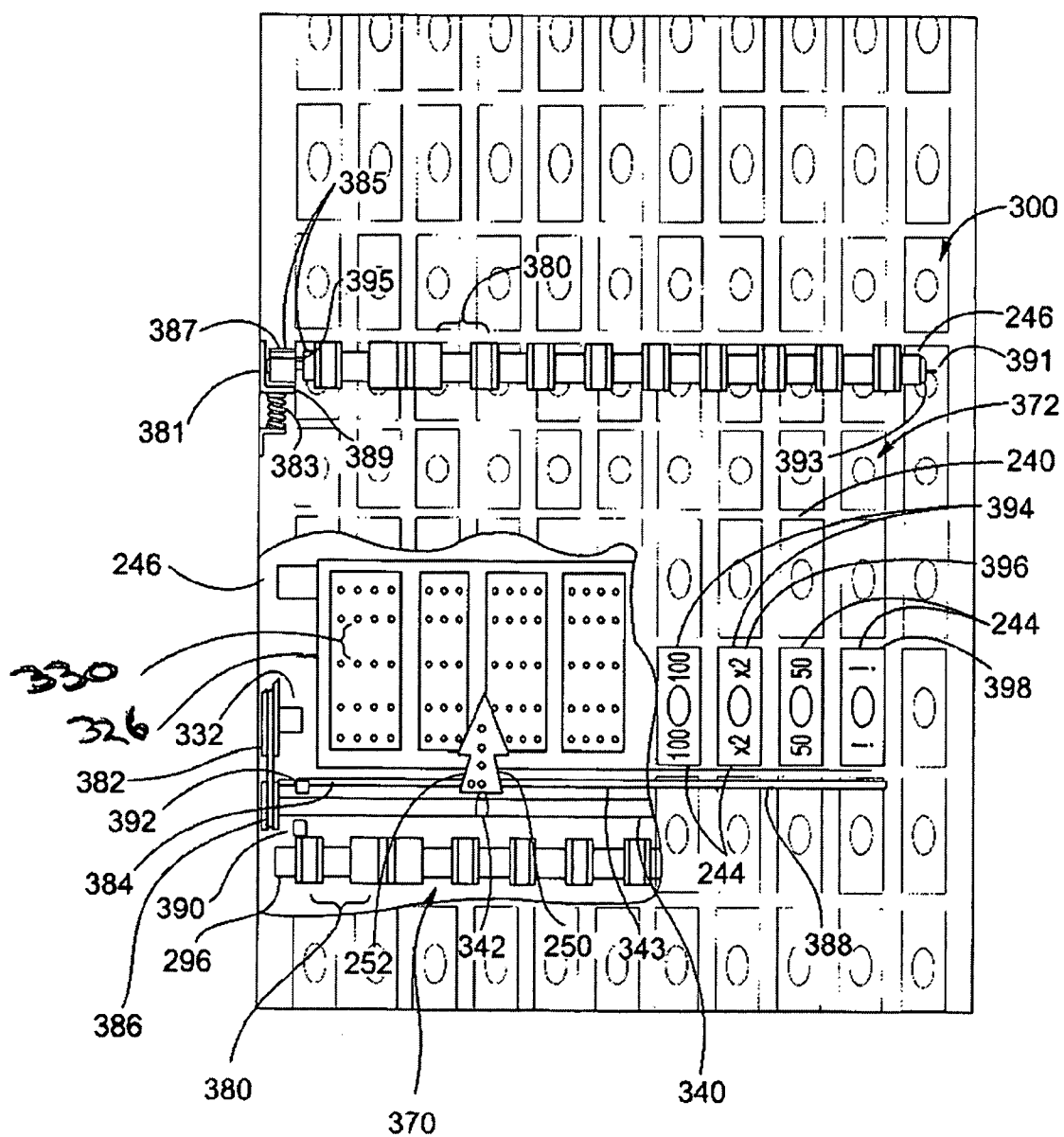


FIG. 9

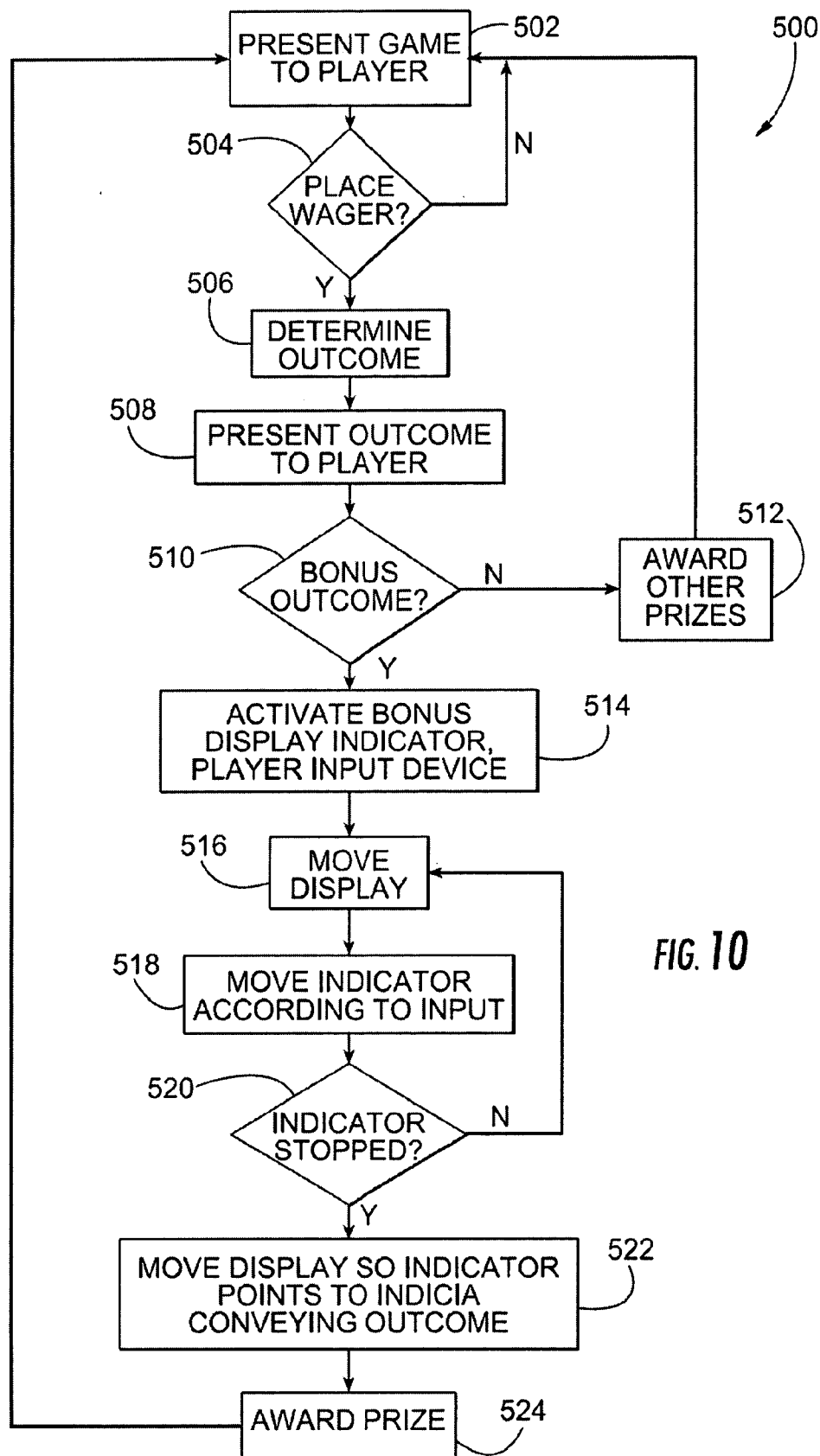


FIG. 10

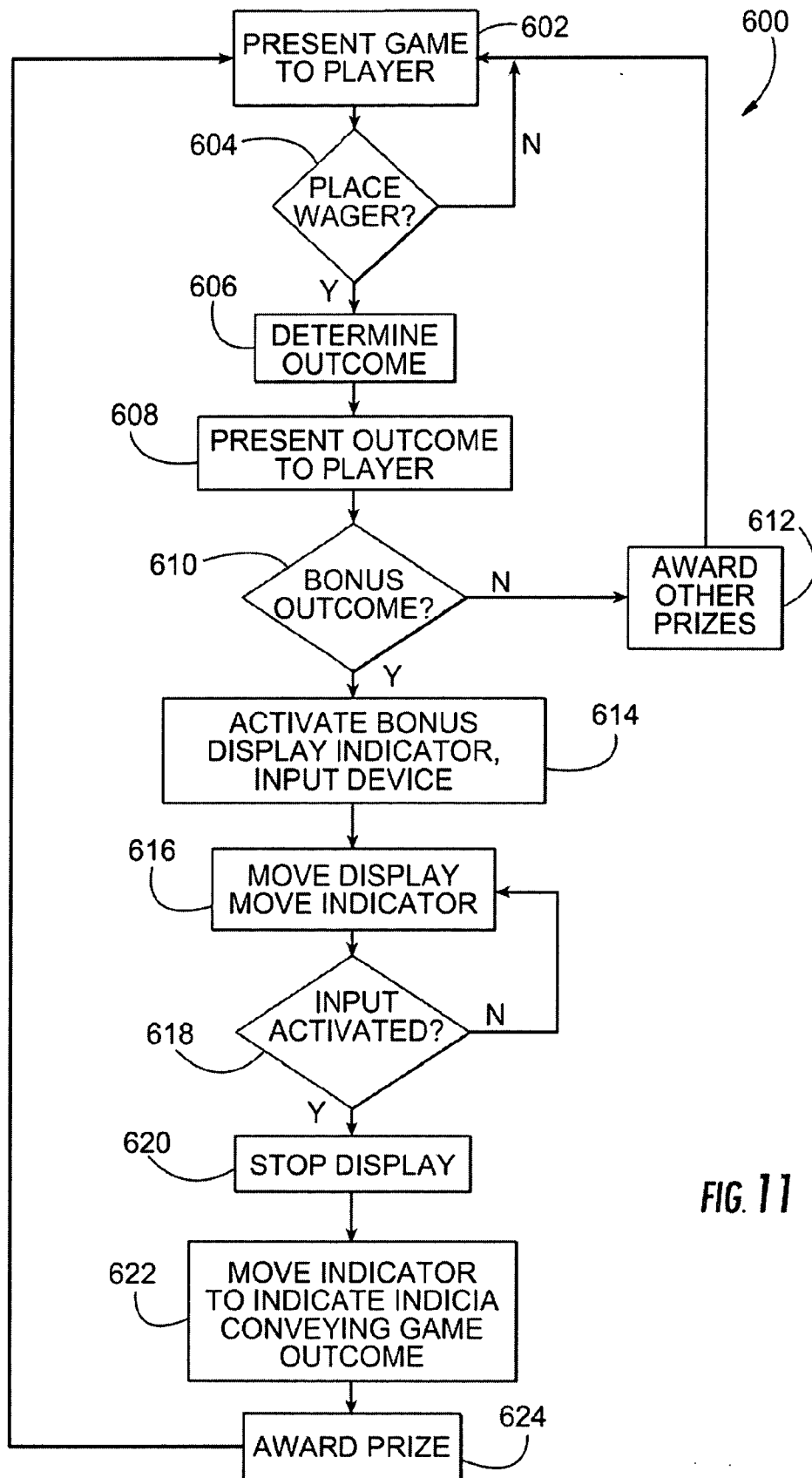


FIG. 11

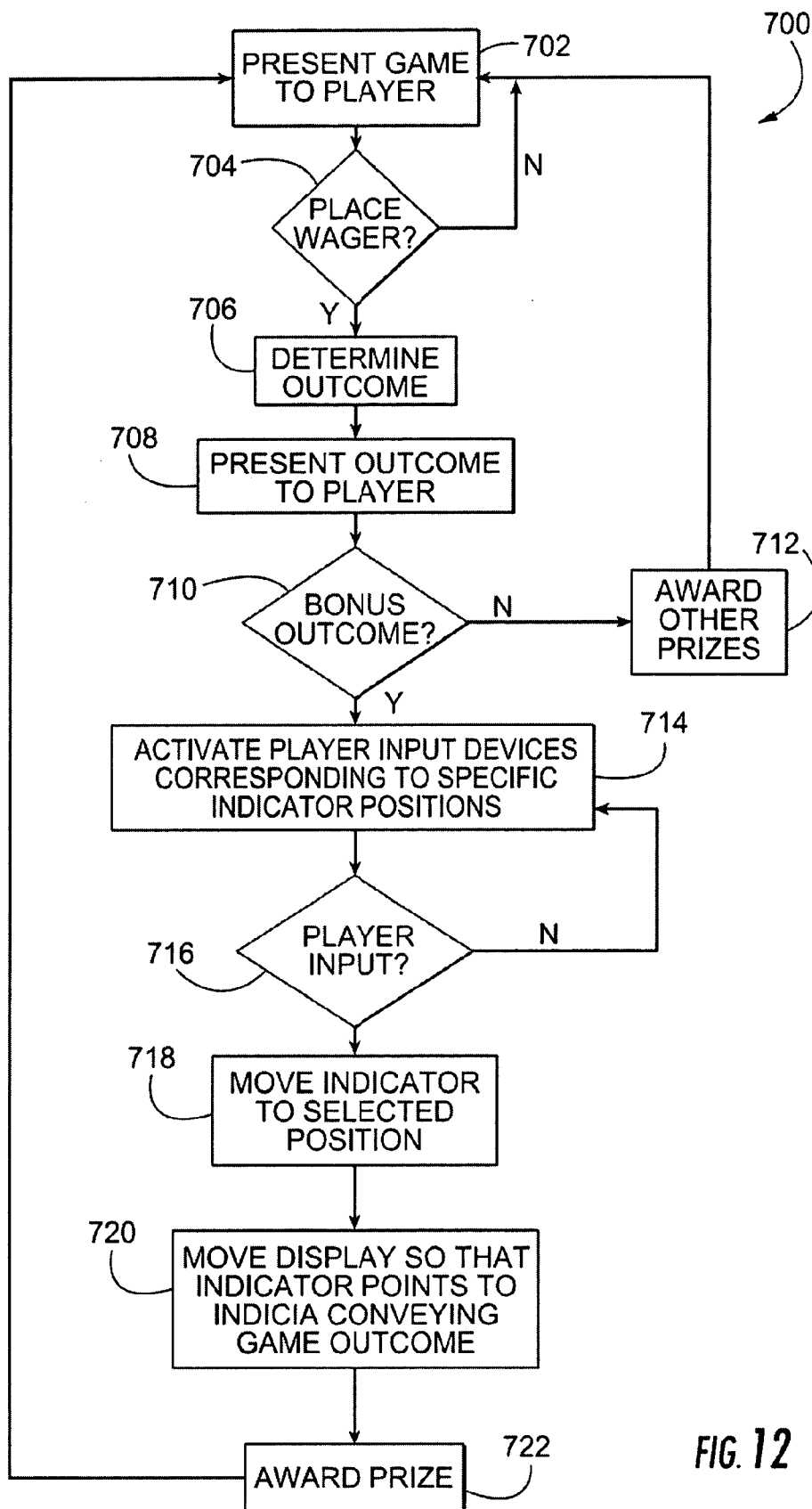


FIG. 12

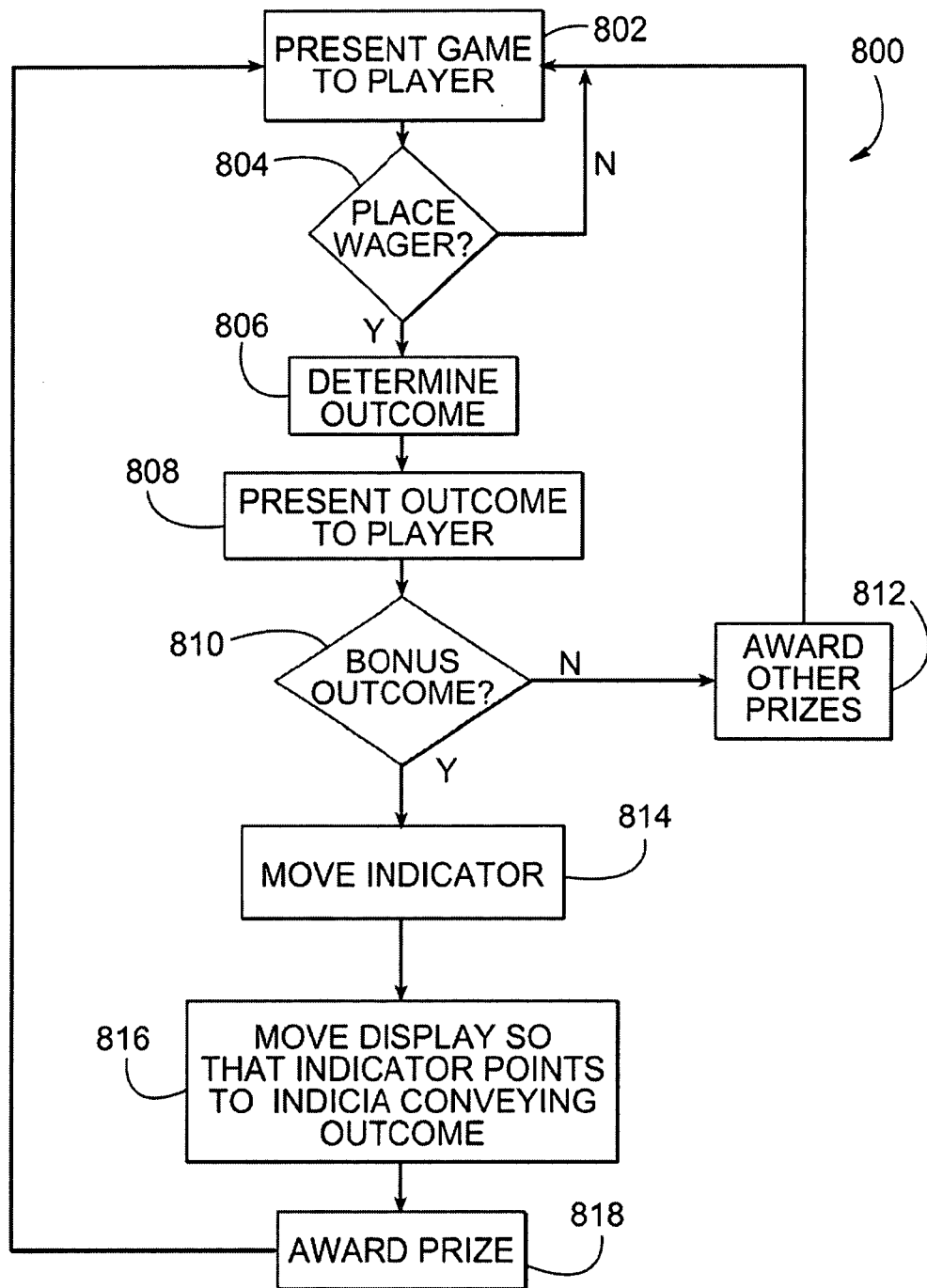


FIG. 13

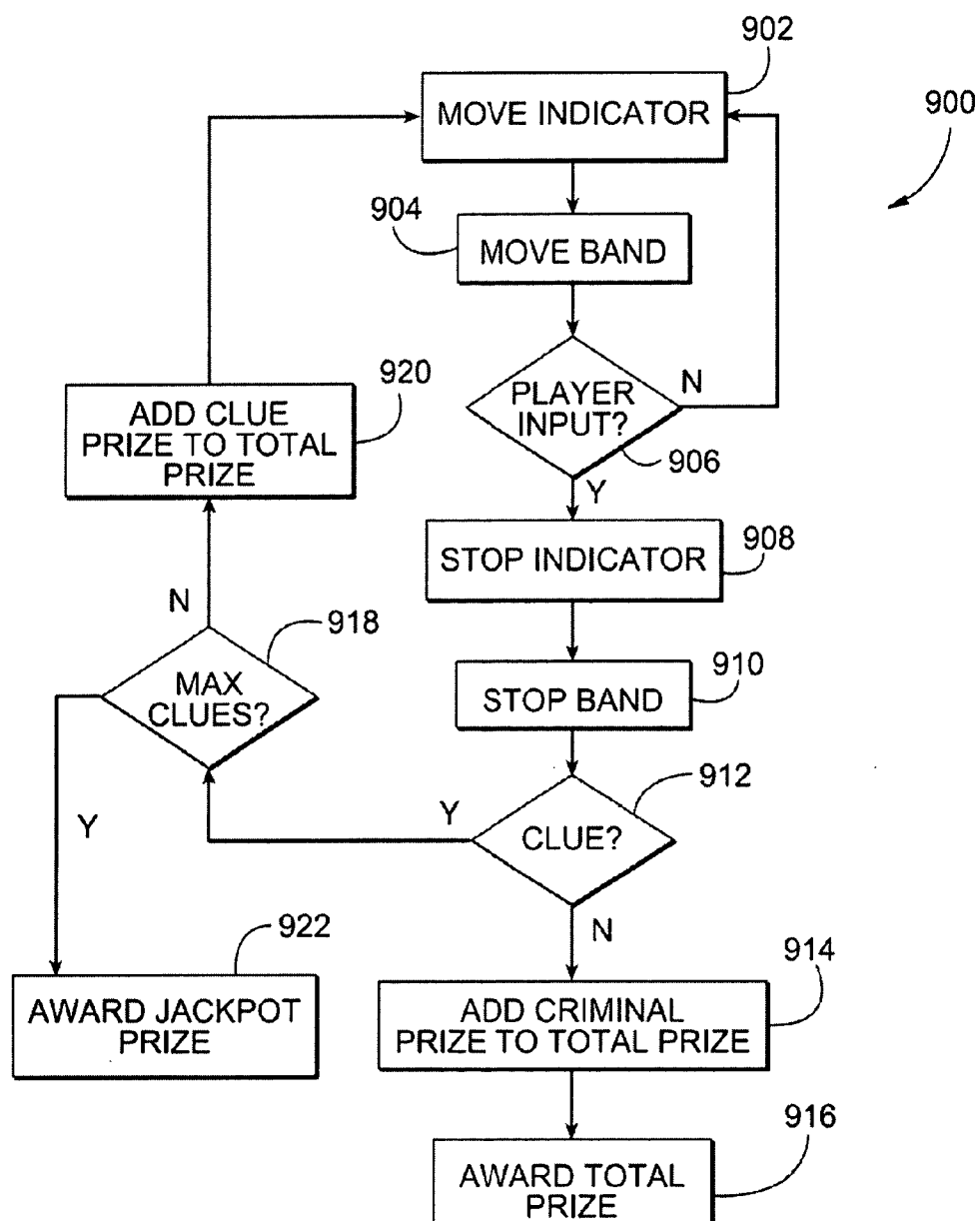


FIG. 14

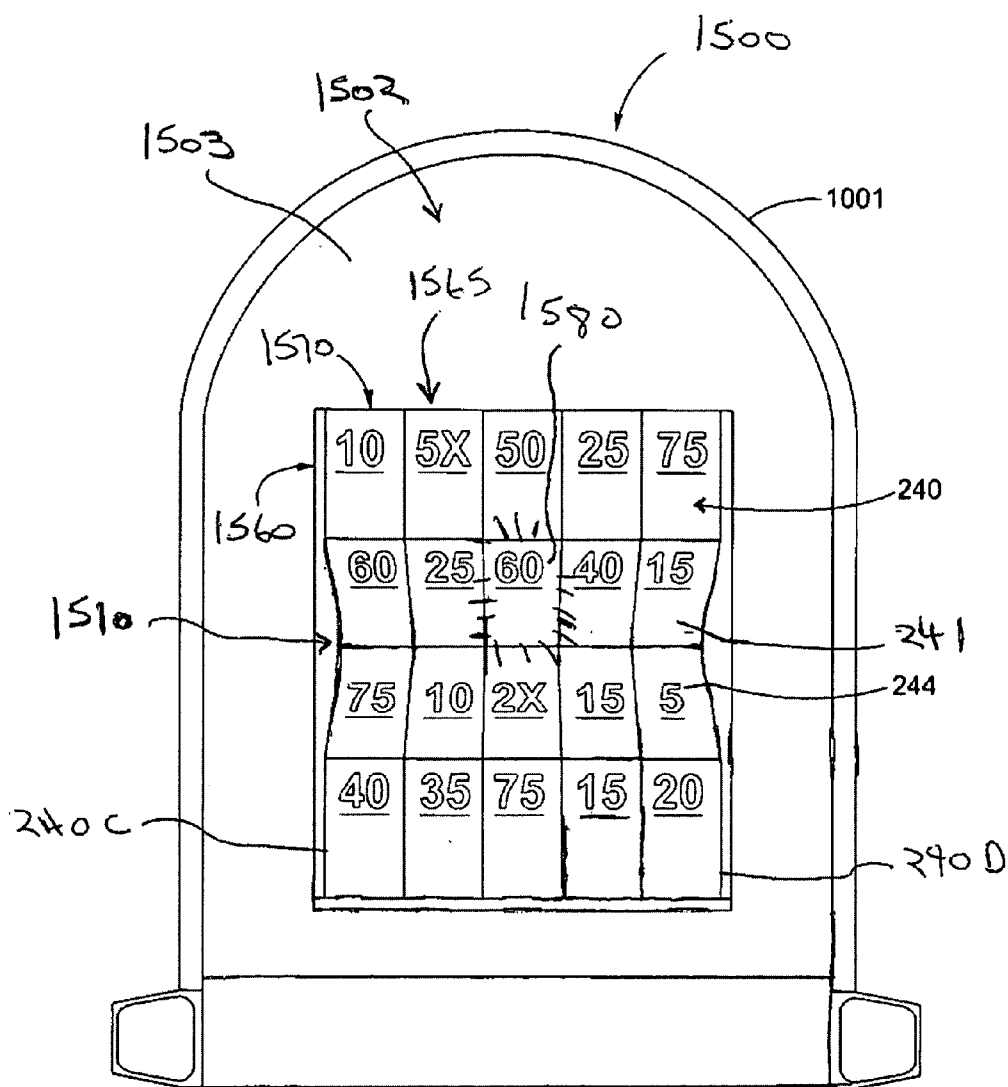


FIG. 15

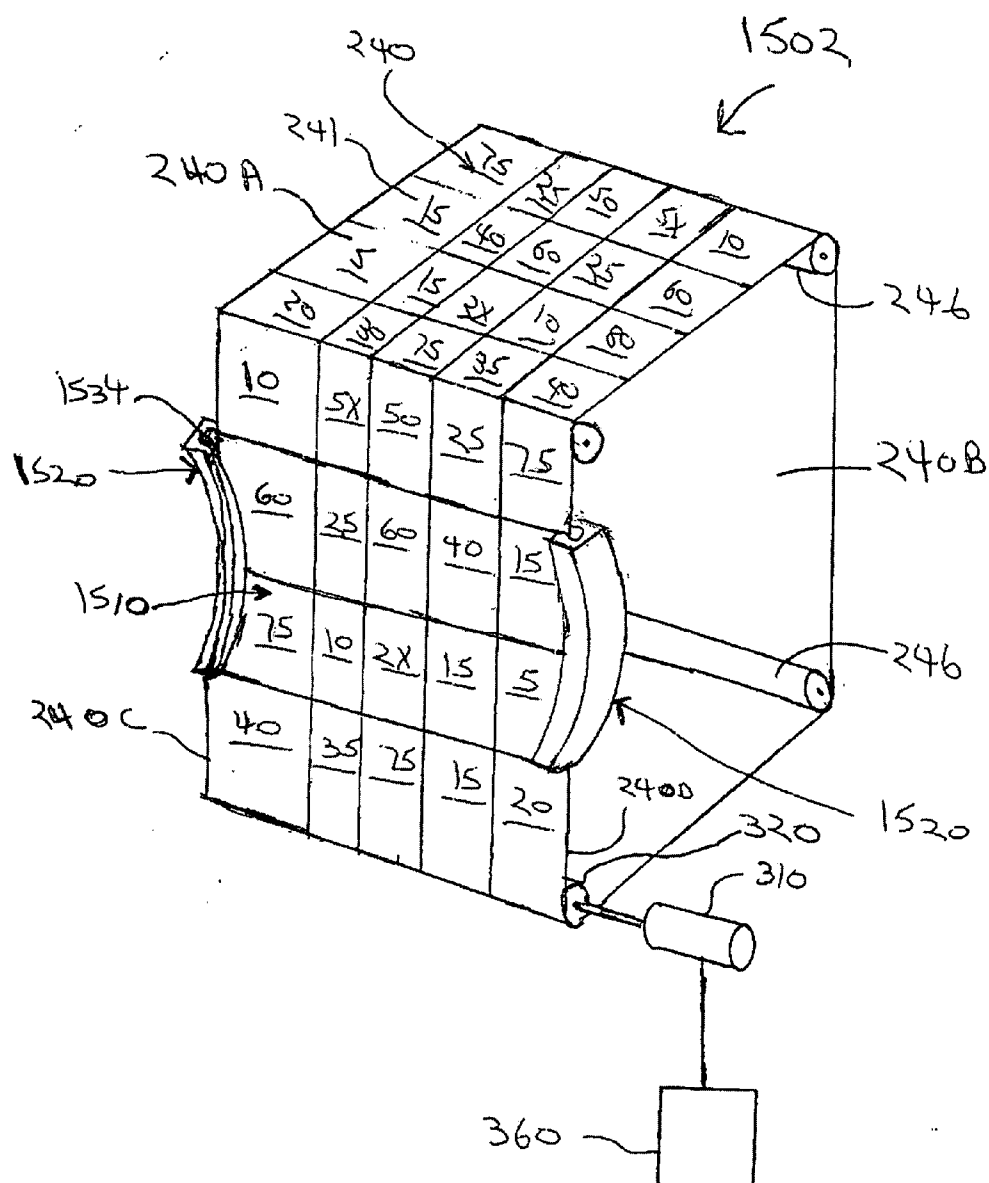


Fig. 16

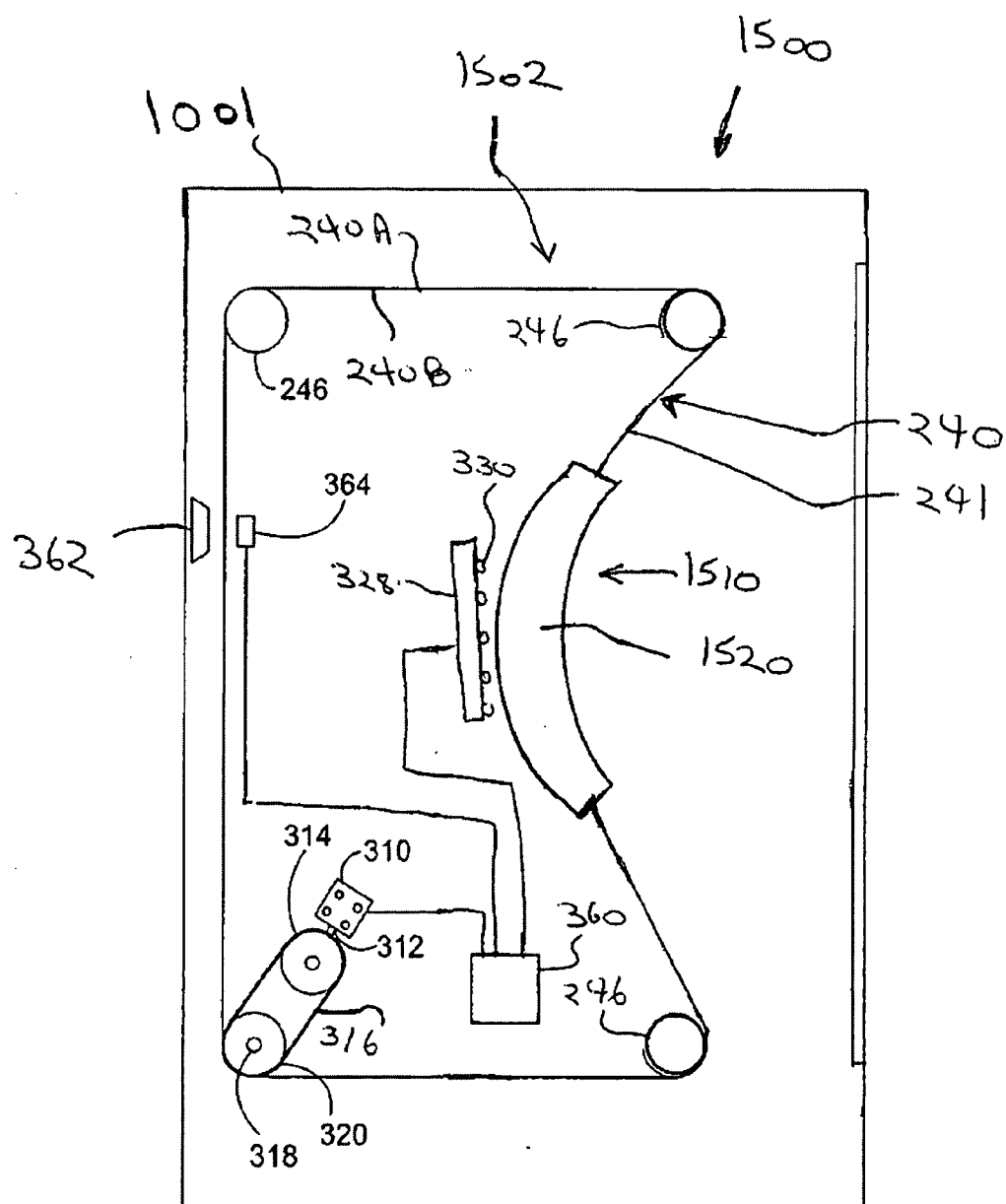


Fig. 17

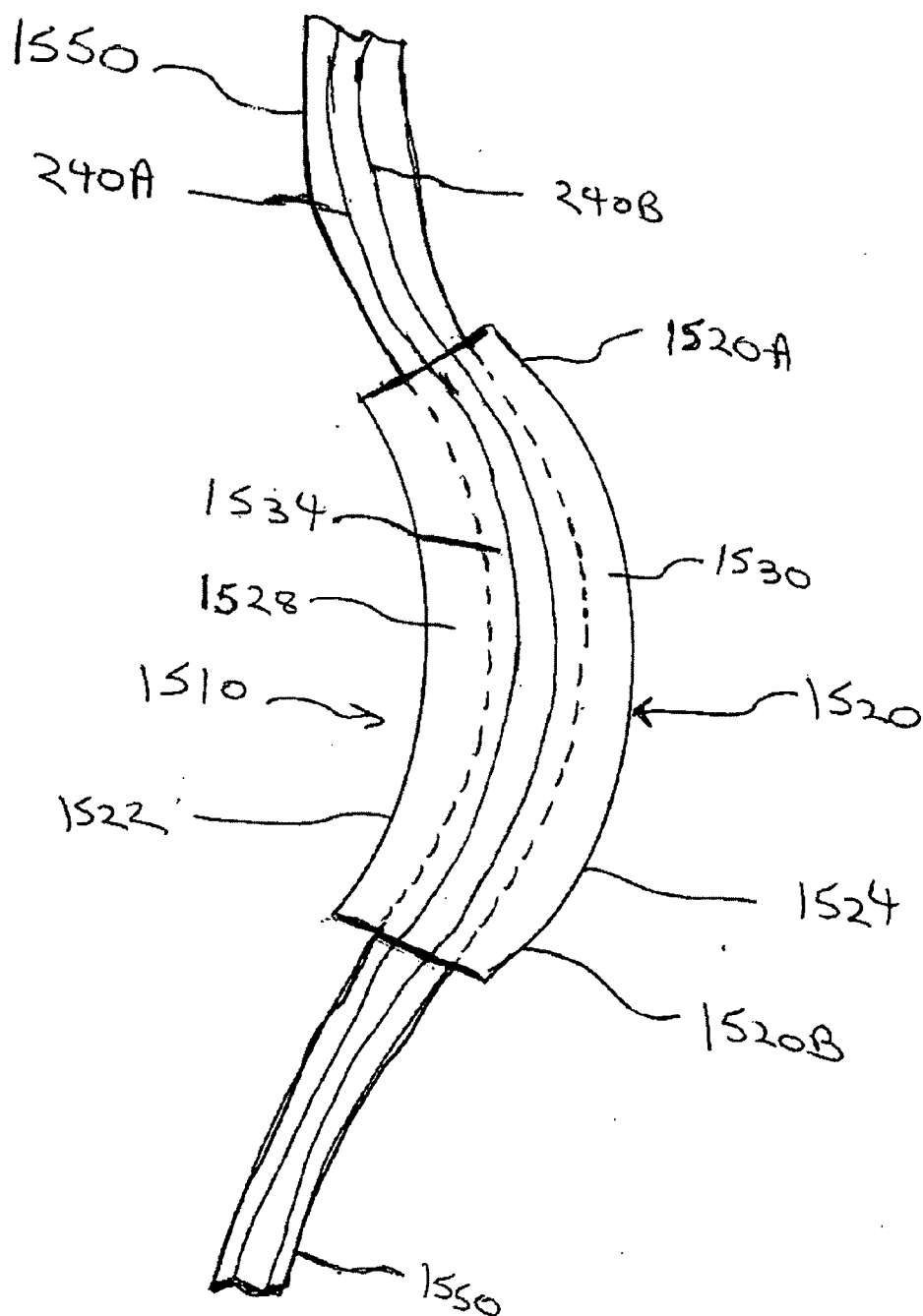


Fig. 18

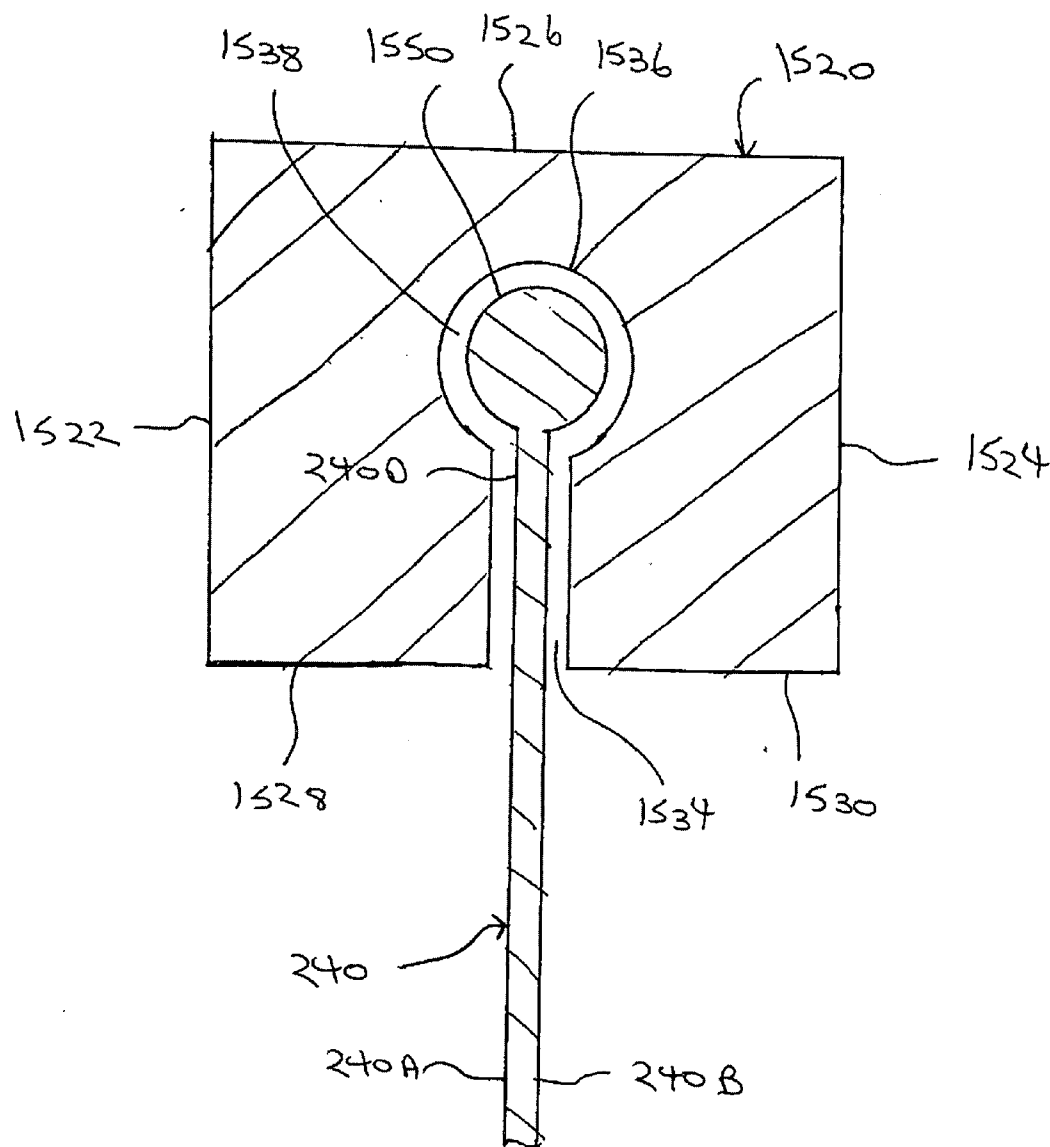


Fig. 19

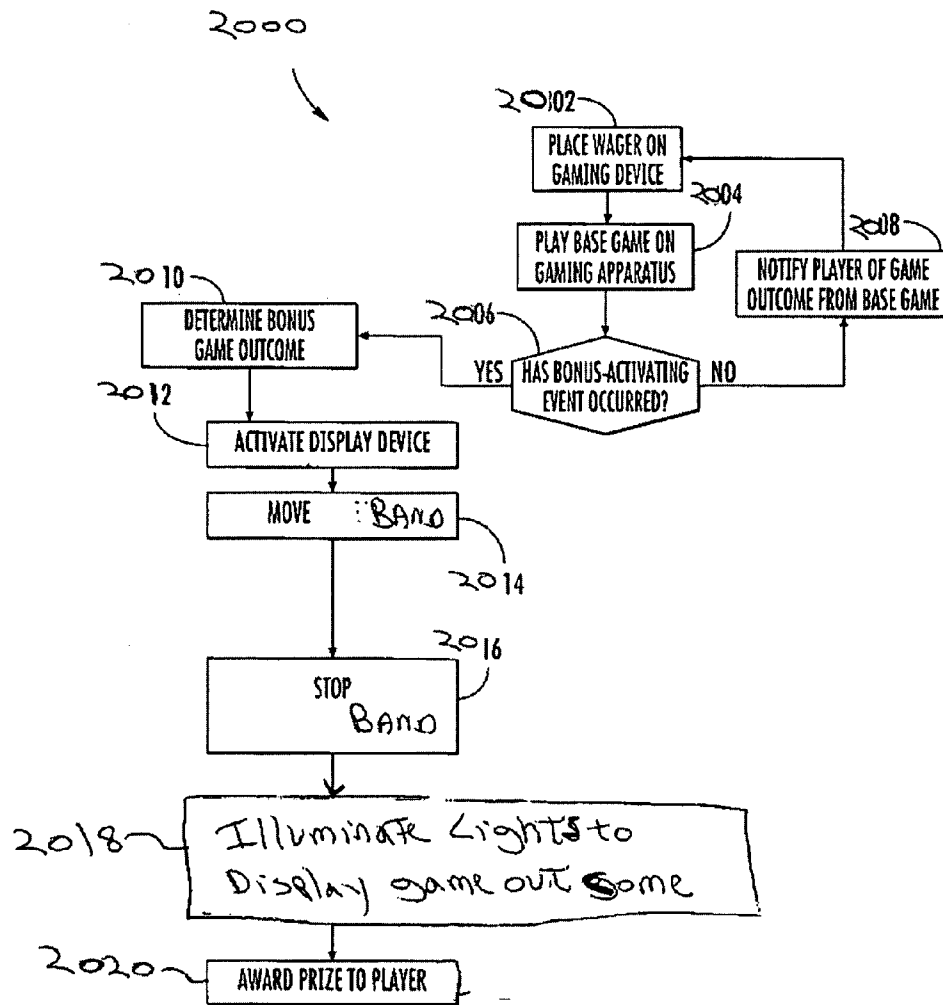


Fig. 20

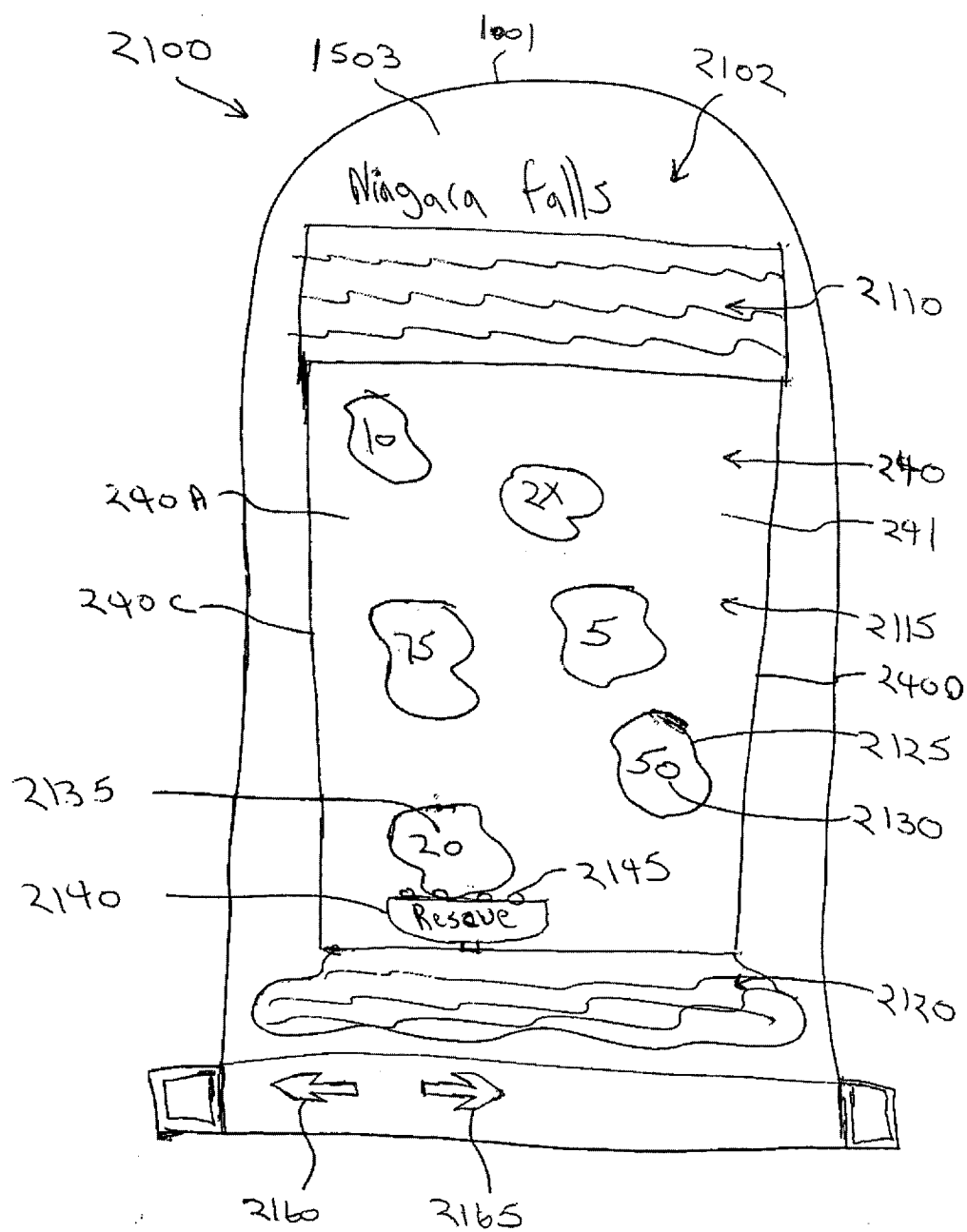


Fig 31

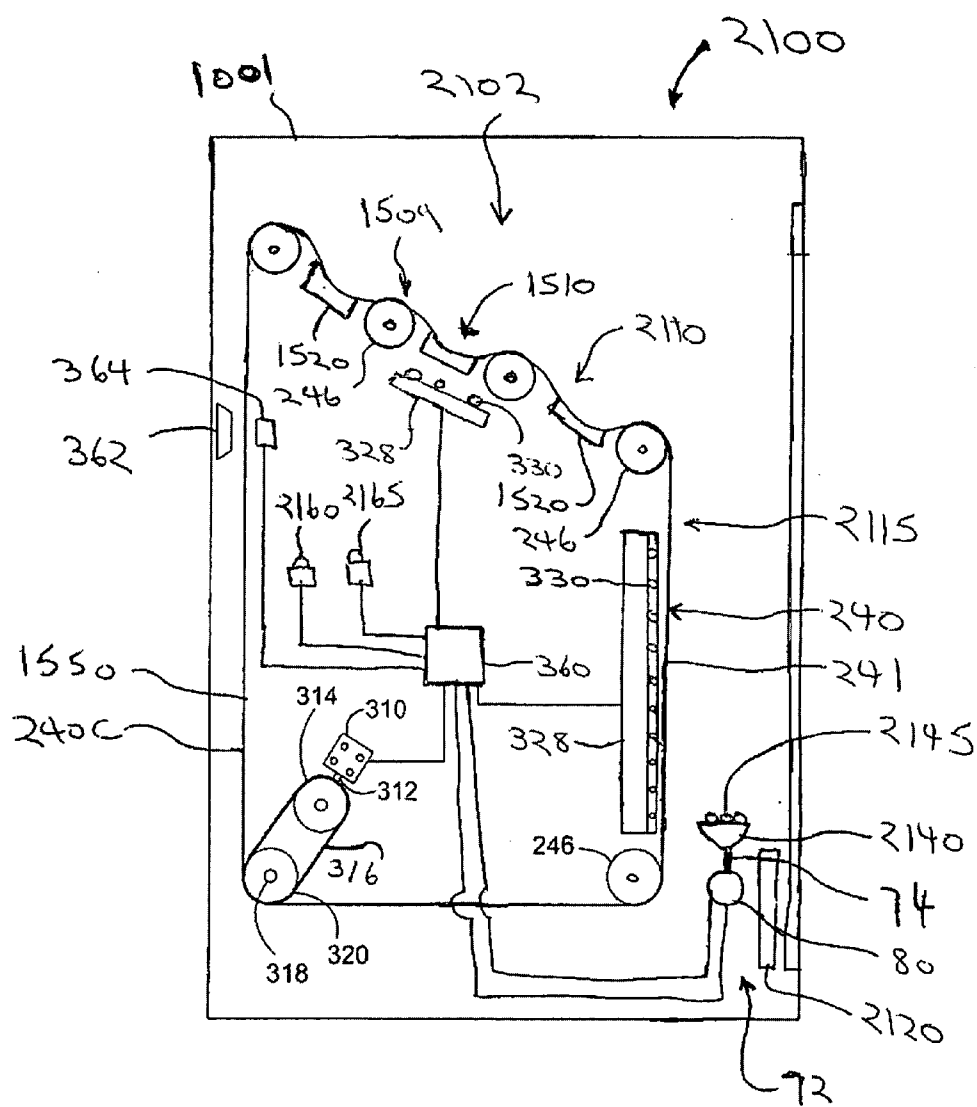


FIG. 22

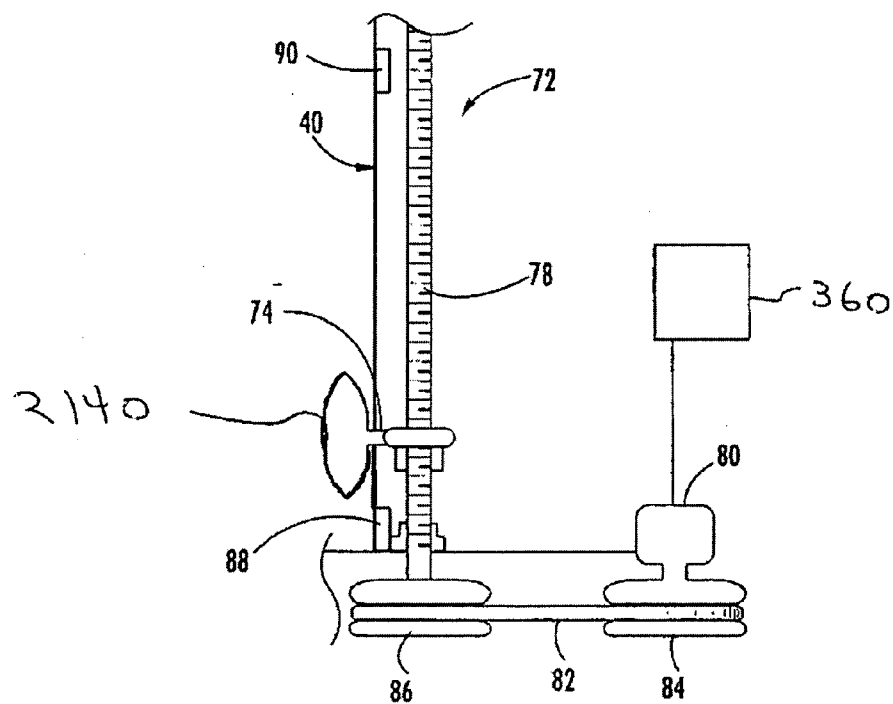


Fig. 23

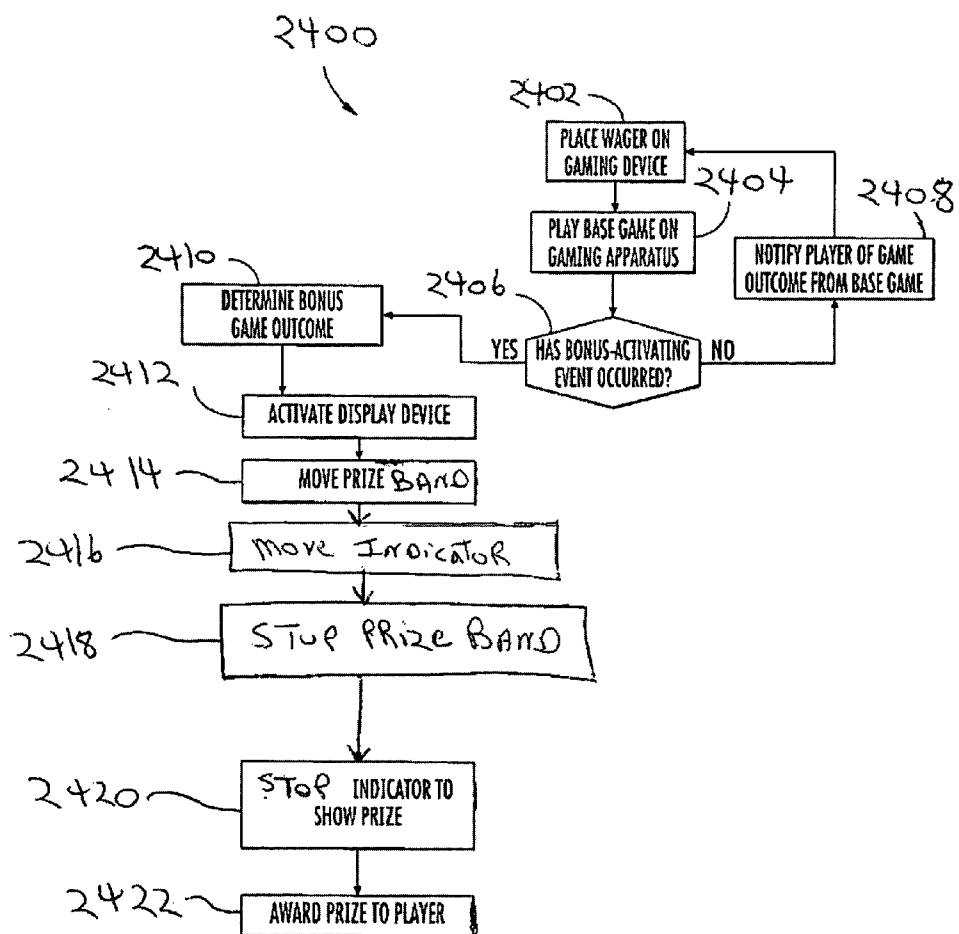


Fig. 24

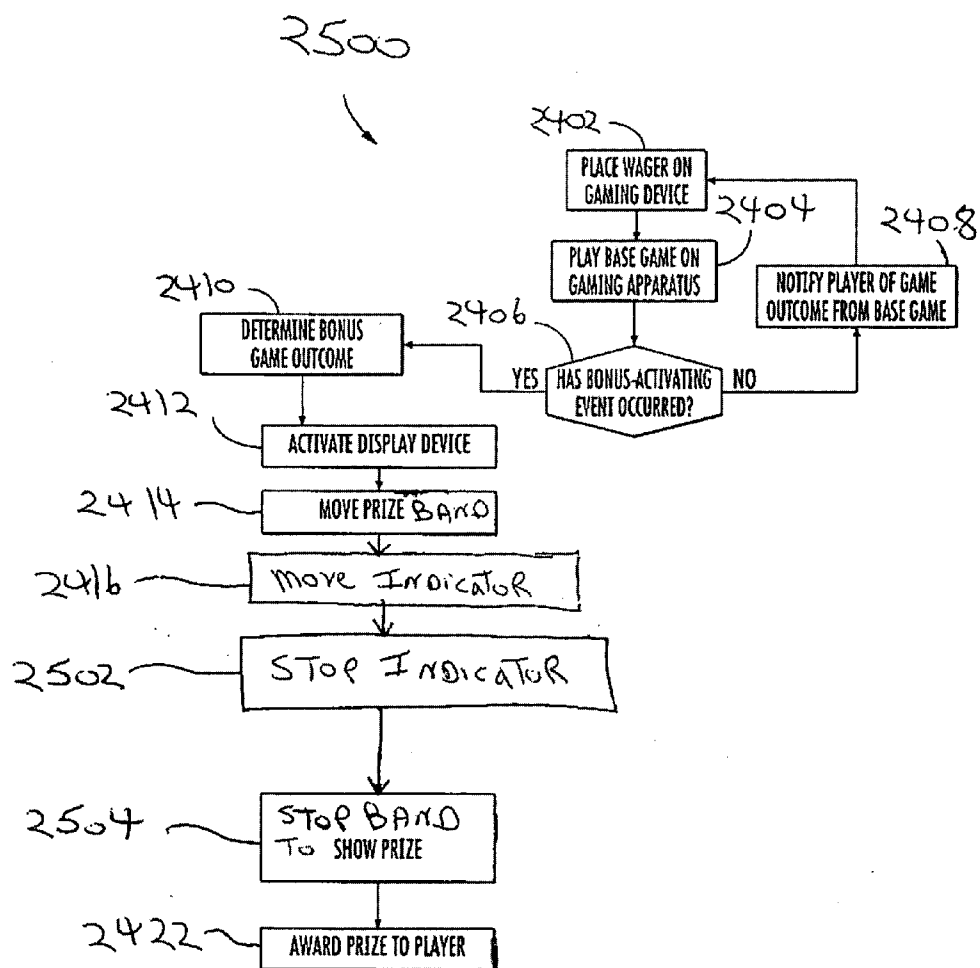


Fig. 25

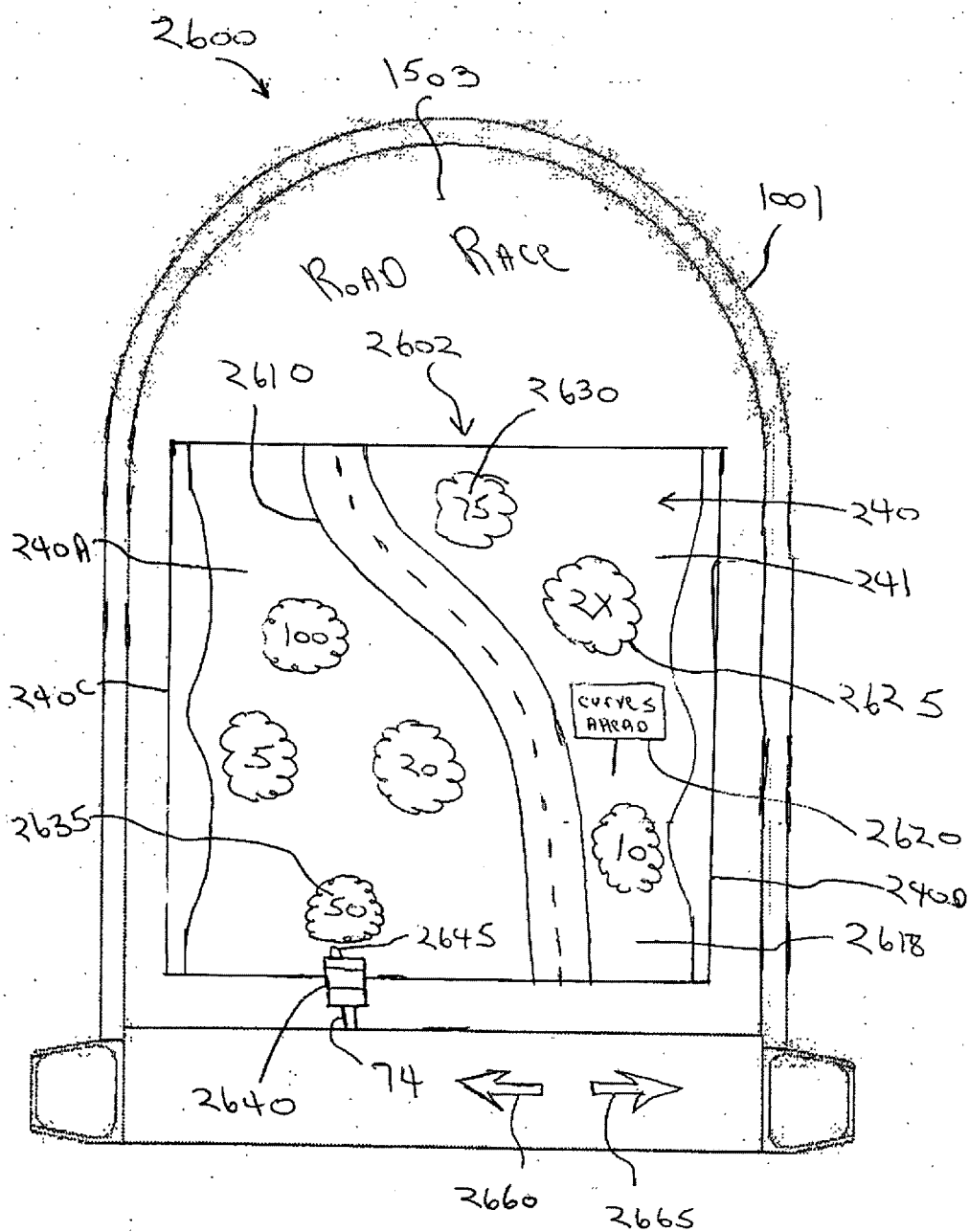
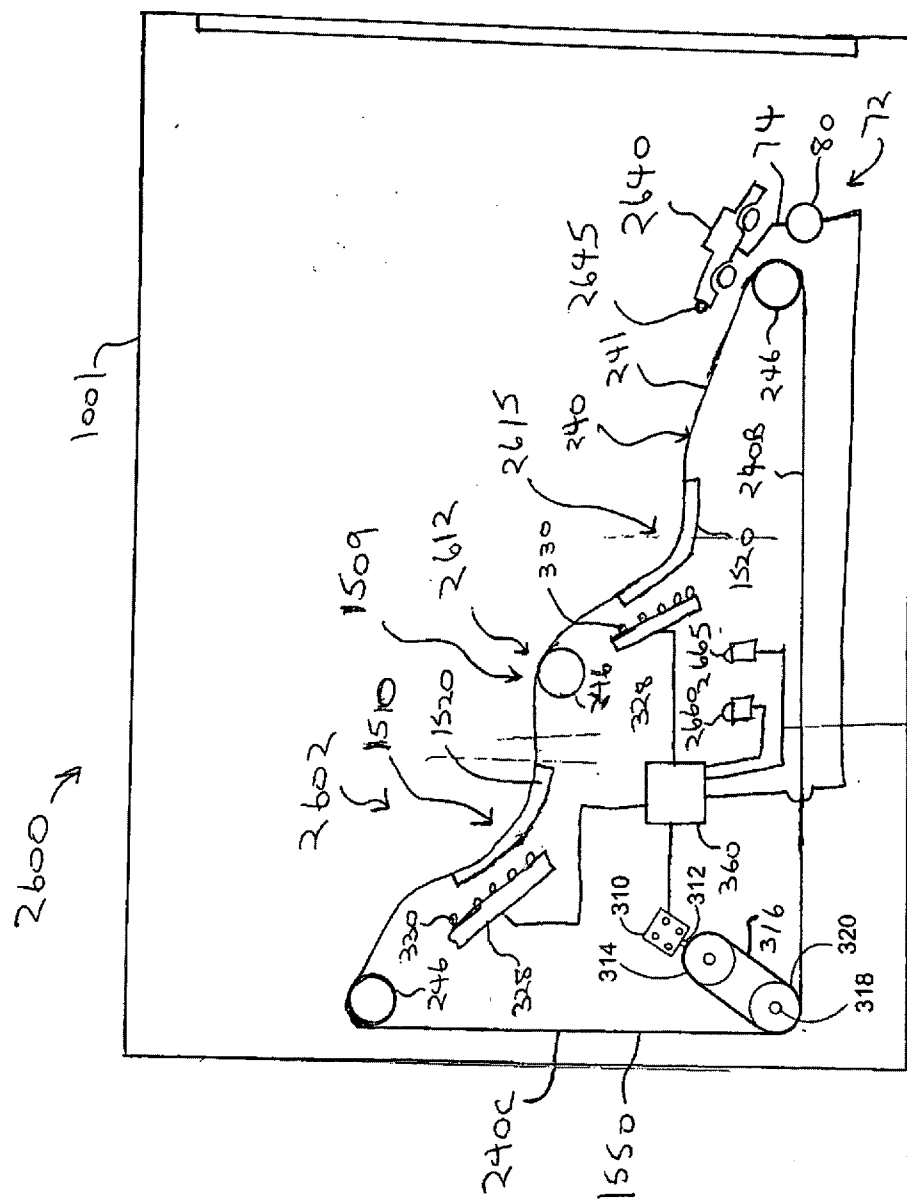


Fig. 26



410.27

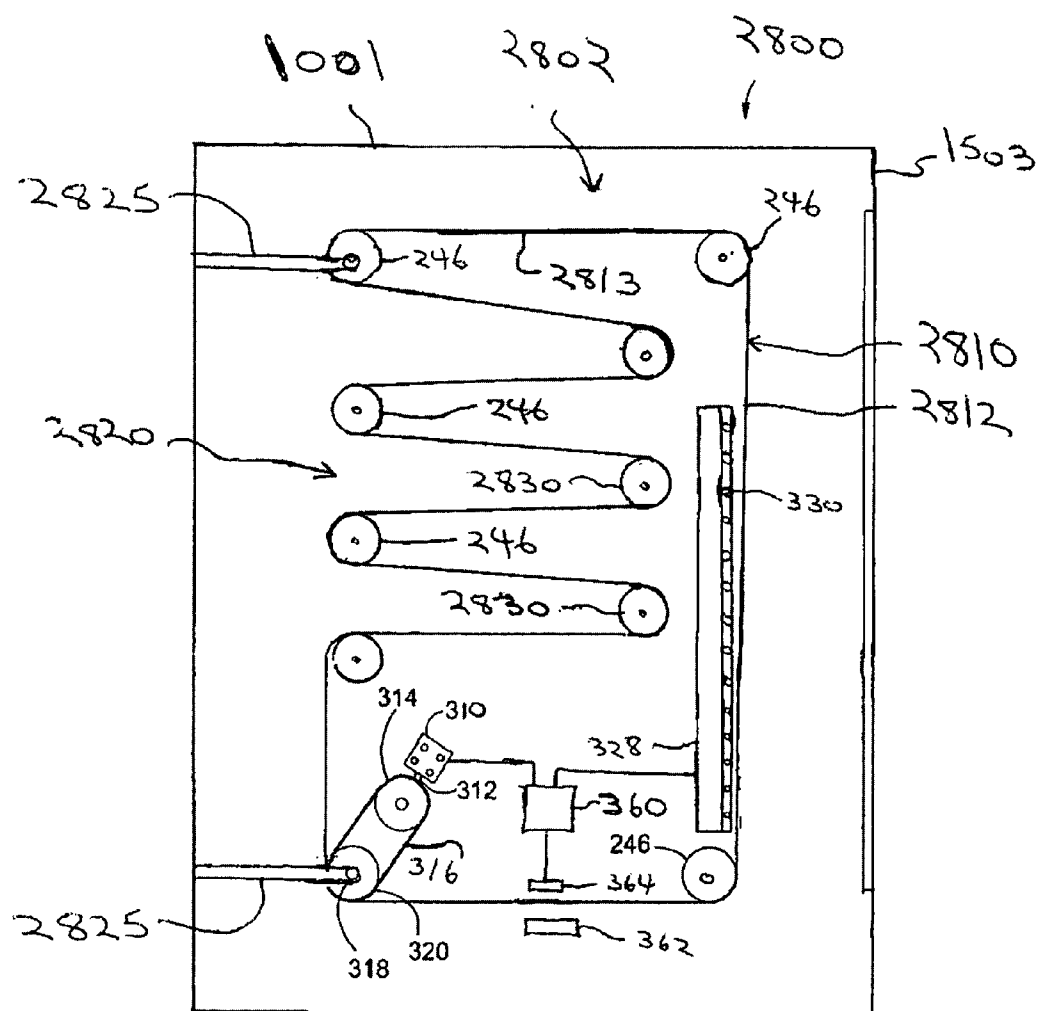


Fig. 28

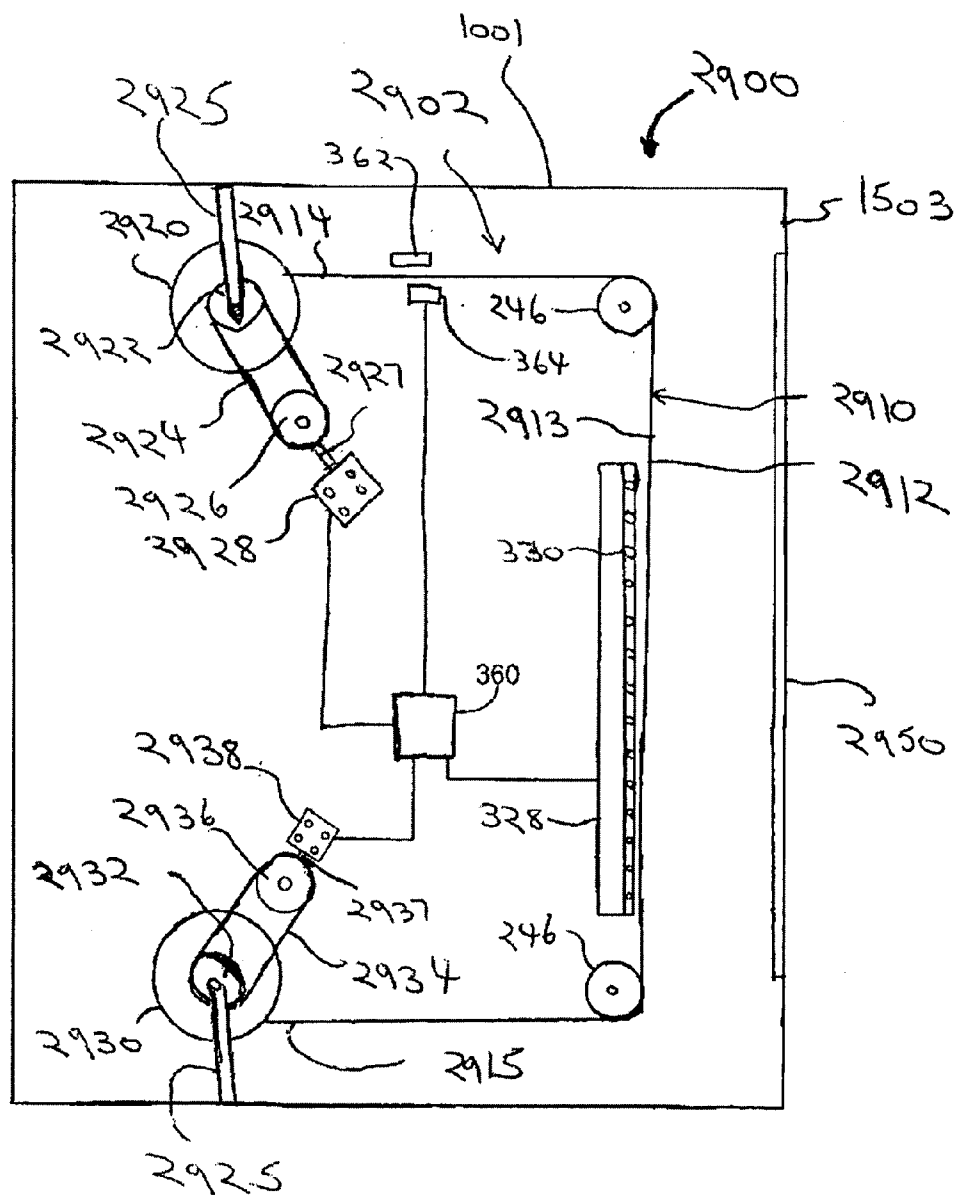


Fig. 29

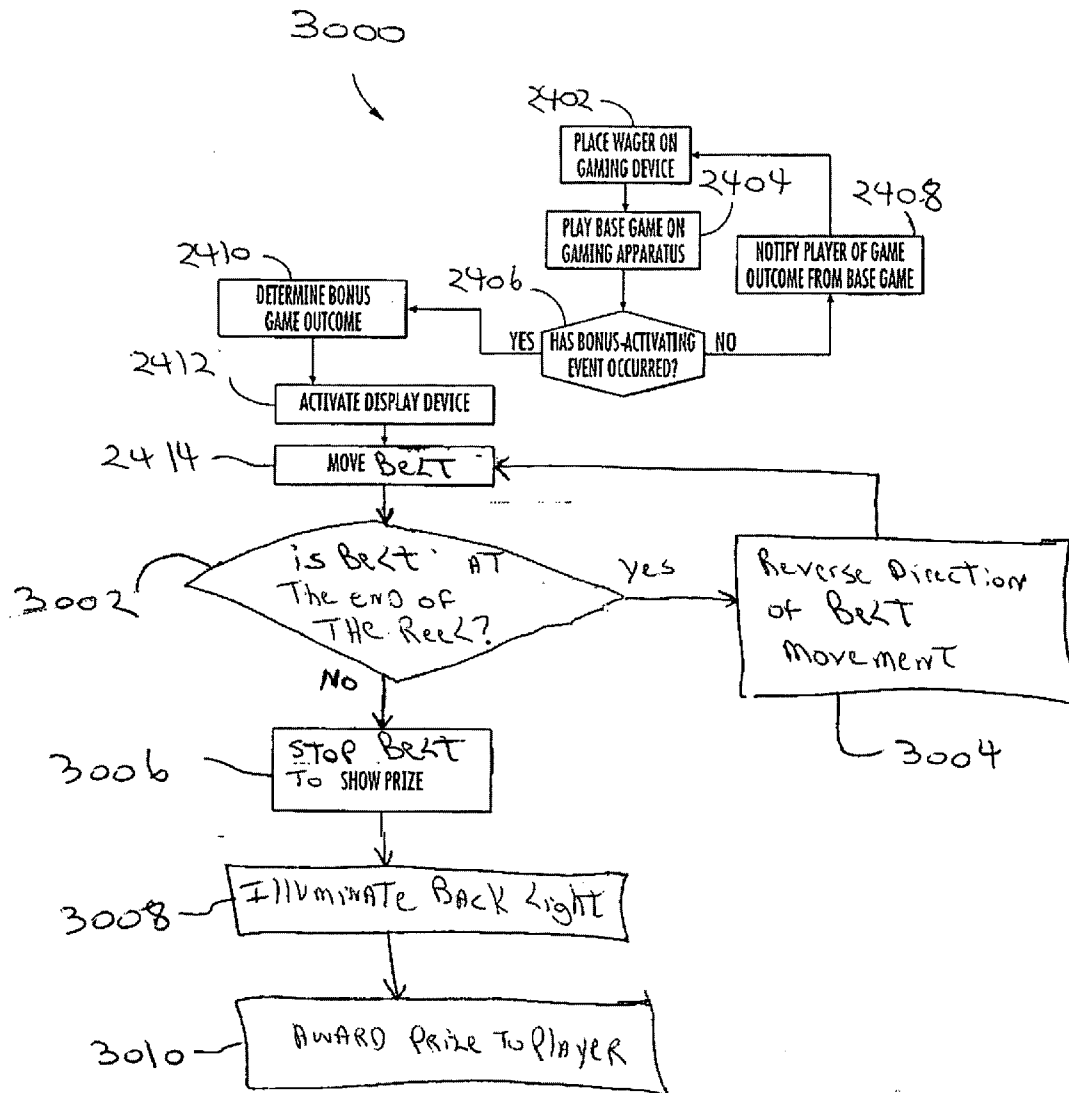


Fig. 30

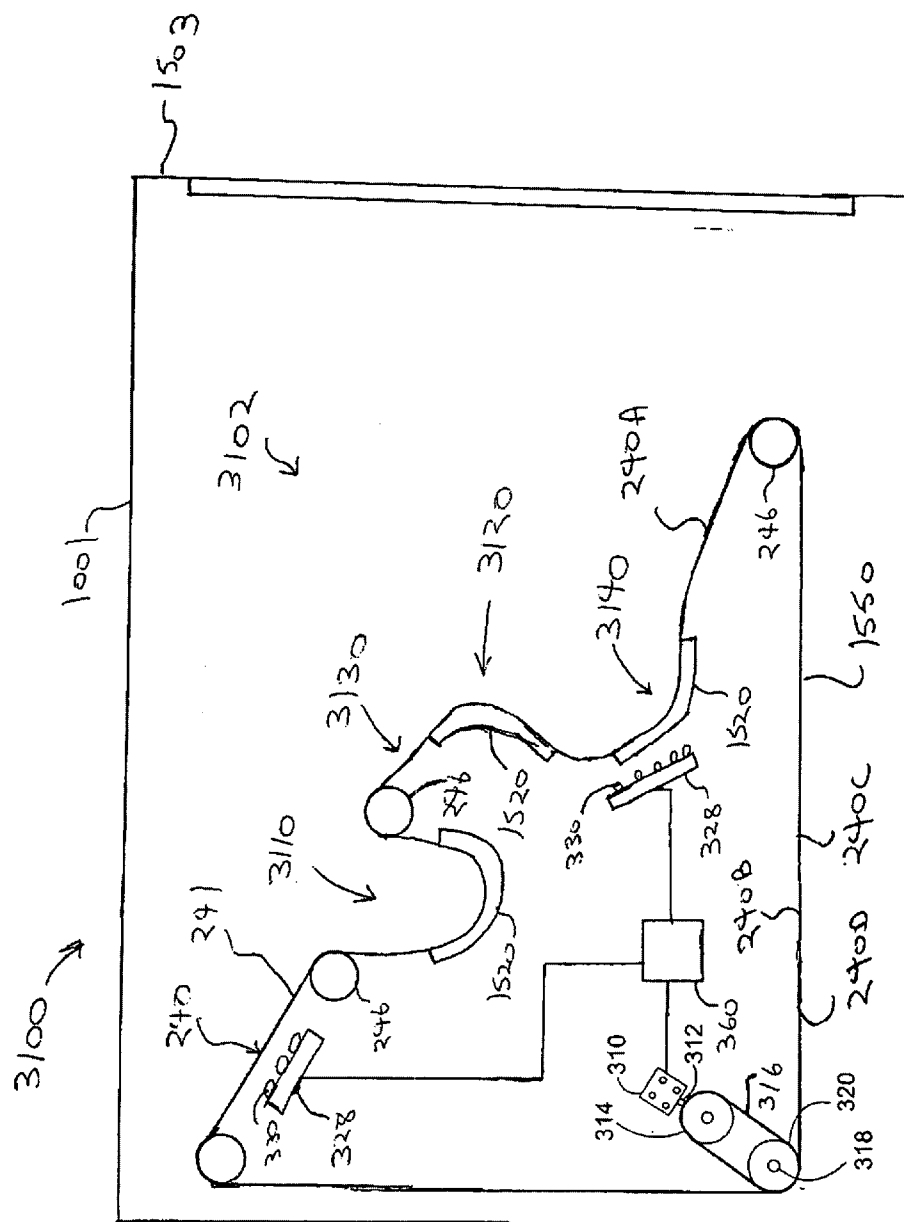


Fig. 31

GAMING DISPLAY WITH MOVEABLE INDICATOR AND METHODS OF USE

CROSS REFERENCES TO RELATED AND CO-PENDING PATENT APPLICATIONS

[0001] This application is a continuation-in-part application of U.S. patent application having Ser. No. 10/806,636 filed Mar. 23, 2004 and entitled "Gaming Display with Moveable Indicator and Methods of Use, which is a continuation-in-part application of U.S. patent application having Ser. No. 10/309,736, filed Dec. 3, 2002 and entitled "Gaming Device With Animated Figure," which is a divisional application of U.S. Pat. No. 6,537,152 to Seelig et al., which issued on Mar. 25, 2003.

[0002] This application also claims priority to U.S. provisional patent application Ser. No. 60/824,136, filed Aug. 31, 2006 and entitled "Gaming Display with Movable Indicator and Methods of Use". The contents of which are herein incorporated by reference in entirety.

FIELD OF THE INVENTION

[0003] The present invention relates to gaming devices and, more particularly, to a gaming device having at least one moveable indicator that indicates a prize to a player.

BACKGROUND

[0004] Gaming devices are well known in the art, and a large variety of gaming devices have been developed. In general, gaming devices allow users or players to play a game. In many casino-type gaming devices, the outcome of the game depends, at least in part, on a randomly generated event. For example, a gaming device may use a random number generator to generate a random or pseudo-random number (hereinafter, both types are referred to as a "random number").

[0005] The random number can be used to determine a game outcome. For example, the random number may then be compared to a predefined table to determine a corresponding outcome of the event. If the random number falls within a certain range of numbers on the table, the player may win the corresponding predefined prize. The table may also contain display information that allows the gaming device to generate a display that corresponds to the outcome of the game. The gaming device may present the outcome of the game on a large variety of display devices, such as mechanical spinning reels or video screens.

[0006] Some gaming devices award bonus prizes in addition to prizes that are awarded in a primary game. Of course, the prize in the primary game may simply be the opportunity to play the bonus game. A bonus prize is generally defined as a prize in addition to the prize obtained from the primary game and that is awarded to the player when a predefined event occurs. An example of a bonus game can be found in U.S. Pat. No. 5,848,932 to Adams. Adams discloses a primary game having three spinning game reels and a bonus game having a bonus display with one spinning wheel. The spinning wheel is divided into multiple sections, and each section has a symbol representing a prize. When predetermined indicia are displayed on the spinning game reels of the primary game, the wheel of the bonus display spins and stops. The bonus prize is displayed as the symbol on the

wheel being pointed to by a pointer. The bonus prize is awarded in addition to any prizes awarded in the primary game. Another bonus game is disclosed in Baerlocher et al. (U.S. Pat. No. 6,336,863). Baerlocher et al. discloses a slot machine with a bonus award display. The bonus award display has a bonus wheel and a mechanical, movable pointer.

[0007] One of the problems associated with the devices disclosed in these references is that the outcome of the bonus game is communicated to the player almost immediately. When a bonus game is triggered, a bonus award is selected, displayed, and awarded to the player. The player can see what the outcome of the game is immediately after the pointers have stopped moving. What has long been needed is a device that utilizes intermediate steps between the occurrence of the bonus event and the awarding of the bonus prize to add an additional element of anticipation and excitement for the players. It is further desired that the intermediate steps involve an eye-catching display. Another problem associated with Adams and Baerlocher et al. is that they utilize a plain combination of wheel and pointer. The applicants have discovered more things that can be done to display devices to make them more attractive and interesting to play.

[0008] Generally, bonus prizes are awarded in order to increase the excitement and enjoyment experienced by players, which attracts more players to the game and encourages players to play longer. When this occurs, the gaming devices tend to be more commercially successful relative to other gaming devices. A shortcoming of present bonus games is that they do not sufficiently allow players to interact with the gaming device, including during bonus games.

[0009] Other attempts have been made to provide player interaction. U.S. Pat. No. 5,788,573 to Baerlocher et al. (hereinafter, "Baerlocher") purports to suggest a gaming device with an electronic "wheel of fortune game." Several flippers appear to indicate positions on the wheel. Baerlocher appears to suggest that the player may be allowed to choose which flipper is used to select an indicium on the wheel. The player, however, does not appear to have any control over the position of the flipper and the flippers do not appear to be capable of moving to different positions.

[0010] U.S. Pat. No. 6,309,300 to Glavich (hereinafter, "Glavich") and U.S. Pat. No. 6,439,995 to Hughs-Baird et al. (hereinafter, "Hughs-Baird") purport to suggest a gaming system having a bonus feature where a player may be allowed to select a number of selectable items, which may be prize representations, on a video display. Glavich and Hughs-Baird do not appear to suggest using prize indicators, moveable prize indicators, or allowing a player to position a prize indicator.

SUMMARY

[0011] Advantages

[0012] The various embodiments of the present invention may, but do not necessarily, achieve one or more of the following advantages:

[0013] provide a highly attractive and entertaining device for conducting games;

[0014] provide a highly attractive and entertaining device for displaying prizes;

- [0015] the ability to attract more patrons to play a game;
 - [0016] the ability to encourage players to play longer on a gaming apparatus;
 - [0017] provide at least one attractive prize indicator;
 - [0018] provide a unique combination of reel-type display and moveable indicator;
 - [0019] provide a display for displaying indicia on a first axis and a moveable indicator configured to indicate an indicium from a second axis orthogonal to the first axis;
 - [0020] allow players to control the movement of a prize indicator;
 - [0021] provide a moving display surface;
 - [0022] provide a moving display with a relatively long path length;
 - [0023] provide a display that allows for a relatively larger number of indicia to be displayed;
 - [0024] provide a display that allows for relatively larger indicia to be displayed;
 - [0025] provide a display surface that can be formed into a large variety of shapes;
 - [0026] provide a moveable display surface that can be guided into various shapes;
 - [0027] create additional suspense for players by increasing the length of time between the start of a game and the display of the game outcome;
 - [0028] allow players to control the movement of a moving display surface;
 - [0029] provide the illusion that the player can influence the outcome of a game;
 - [0030] provide a game that allows for more player interaction;
 - [0031] utilize intermediate steps between the occurrence of the bonus event and the awarding of the bonus prize; and
 - [0032] provide an additional element of anticipation and excitement for players.
- [0033] These and other advantages may be realized by reference to the remaining portions of the specification, claims, and abstract.

BRIEF DESCRIPTION OF CERTAIN ASPECTS OF THE INVENTION

[0034] In one embodiment, the present invention comprises a gaming apparatus that includes a display device that has a moveable display surface. The moveable display surface comprises several indicia. One or more guide tracks retain at least a portion of the moveable display surface such that the guide track can alter a position of the moveable display surface. An actuator is coupled with the moveable display surface such that the actuator can move the moveable display surface. A controller is in communication with the actuator and can position the display surface such that at least one of the indicia conveys a game outcome.

[0035] In another embodiment, the present invention comprises a method of playing a game. The method includes

determining a game outcome and moving a display surface. The display surface has several indicia. The display surface is guided using a guide track to form a concave portion of the display surface. The display surface is guided using a roller to form a convex portion of the display surface. The display surface is stopped, and at least one of the indicia is indicated as the game outcome.

[0036] In an additional embodiment, the present invention comprises a gaming apparatus that includes a display device that has a moveable display surface. The moveable display surface has several indicia. A guide track retains a portion of the moveable display surface. The guide track alters a position of the moveable display surface. An actuator is coupled with the moveable display surface such that the actuator can move the moveable display surface. An indicator is positioned adjacent to the display surface to indicate at least one of the indicia. A controller is in communication with the actuator and the indicator. The controller can move the display surface and position the indicator such that in combination, the display surface and the indicator convey a game outcome.

[0037] In yet another embodiment, the present invention comprises gaming apparatus that includes a display device that has a moveable display surface. A guide track retains a portion of the moveable display surface. The guide track alters a first shape of the moveable display surface as the moveable display surface is moved. A roller supports a portion of the moveable display surface. The roller alters a second shape of the moveable display surface as the moveable display surface is moved. An actuator is coupled with the moveable display surface such that the actuator can move the moveable display surface. A controller is in communication with the actuator and can direct the actuator to move the display surface.

[0038] In still another embodiment, the present invention comprises a gaming apparatus that includes a display device that has a moveable band. The moveable band has an inner surface and an outer surface. A first set of rollers is positioned adjacent the inner surface for supporting the moveable band, and a second set of rollers is positioned adjacent the outer surface for supporting the moveable band. An actuator is coupled with the moveable band such that the actuator can move the moveable band. A controller is in communication with the actuator and can cause the moveable band to move.

[0039] In an additional embodiment, the present invention includes a gaming apparatus that has a display device with a moveable band. The moveable band has an inner surface and an outer surface, a first end and a second end. Several indicia are disposed on the outer surface. A first reel is coupled to the first end of the moveable band, and a second reel is coupled to the second end of the moveable band. A first actuator is coupled to the first reel such that the first actuator can rotate the first reel. A second actuator is coupled to the second reel such that the second actuator can rotate the second reel. A controller is in communication with the first and second actuators such that the controller can control movement of the moveable band.

[0040] The above description sets forth, rather broadly, the more important features of the present invention so that the detailed description of the preferred embodiment that follows may be better understood and contributions of the

present invention to the art may be better appreciated. There are, of course, additional features of the invention that will be described below and will form the subject matter of claims. In this respect, before explaining at least one preferred embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of the construction and to the arrangement of the components set forth in the following description or as illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

BRIEF DESCRIPTION OF THE DRAWINGS

[0041] Certain embodiments of the invention are shown in the accompanying drawings wherein:

[0042] FIG. 1a is substantially a front elevation view of an embodiment of the gaming apparatus of the present invention.

[0043] FIG. 1b is substantially a schematic diagram showing components of an embodiment of the gaming apparatus.

[0044] FIG. 2a is substantially a partial perspective view of an embodiment of a display device of a prize display.

[0045] FIG. 2b is substantially a perspective view of the display device shown in FIG. 2a with a band on which indicia are affixed.

[0046] FIG. 3 is substantially a side elevation view of one embodiment of a positioning mechanism of the present invention.

[0047] FIG. 4 is substantially a partial cross-sectional view of the gaming apparatus of FIG.

[0048] FIG. 5 is substantially a front elevation view of an embodiment of a gaming apparatus of the present invention.

[0049] FIG. 6 is substantially a flowchart of a gaming method of the present invention.

[0050] FIG. 7 is substantially a front perspective view of an embodiment of a gaming apparatus of the present invention.

[0051] FIG. 8 is substantially a side elevation view of an embodiment of a gaming apparatus according to the present invention.

[0052] FIG. 9 is substantially a front view of a gaming apparatus according to the present invention, including a cut away view showing the interior of the gaming apparatus.

[0053] FIG. 10 is substantially a flowchart of a method according to the present invention.

[0054] FIG. 11 is substantially a flowchart of a method according to the present invention.

[0055] FIG. 12 is substantially a flowchart of a method according to the present invention.

[0056] FIG. 13 is substantially a flowchart of a method according to the present invention.

[0057] FIG. 14 is substantially a flowchart of a method according to the present invention.

[0058] FIG. 15 is substantially a front view of another embodiment of a gaming apparatus according to the present invention.

[0059] FIG. 16 is substantially a perspective view of the gaming apparatus of FIG. 15 with the housing removed.

[0060] FIG. 17 is substantially a partial cross-sectional view of the gaming apparatus of FIG. 15.

[0061] FIG. 18 is substantially a side view of a guide track and band.

[0062] FIG. 19 is substantially a cross-sectional view of a guide track and band.

[0063] FIG. 20 is substantially a flowchart of a gaming method according to the present invention using the apparatus of FIGS. 15-19.

[0064] FIG. 21 is substantially a front view of another embodiment of a gaming apparatus according to the present invention.

[0065] FIG. 22 is substantially a partial cross-sectional view of the gaming apparatus of FIG. 21.

[0066] FIG. 23 is substantially a side elevation view of one embodiment of a positioning mechanism of the present invention.

[0067] FIG. 24 is substantially a flowchart of a gaming method according to the present invention using the apparatus of FIGS. 21-23.

[0068] FIG. 25 is substantially a flowchart of another gaming method according to the present invention using the apparatus of FIGS. 21-23.

[0069] FIG. 26 is substantially a front view of another embodiment of a gaming apparatus according to the present invention.

[0070] FIG. 27 is substantially a partial cross-sectional view of the gaming apparatus of FIG. 26.

[0071] FIG. 28 is substantially a partial cross-sectional view of another embodiment of a gaming apparatus according to the present invention.

[0072] FIG. 29 is substantially a partial cross-sectional view of another embodiment of a gaming apparatus according to the present invention.

[0073] FIG. 30 is substantially a flowchart of a gaming method according to the present invention using the apparatus of FIG. 29.

[0074] FIG. 31 is substantially a partial cross-sectional view of another embodiment of a gaming apparatus according to the present invention.

DESCRIPTION OF AT LEAST ONE EMBODIMENT OF THE PRESENT INVENTION

[0075] In the following detailed description of at least one embodiment of the present invention, reference is made to the accompanying drawings, which form a part of this application. The drawings show, by way of illustration, specific embodiments in which the invention may be practiced. It is to be understood that other embodiments may be utilized and structural changes may be made without departing from the scope of the present invention.

[0076] As seen in FIG. 1a, the present invention comprises a gaming apparatus, generally indicated by reference number 10. In at least one embodiment, gaming apparatus 10 comprises a second display 12 and a primary gaming device 14. Gaming device 14 may be any of a large number of devices that are adapted to allow players to play a game, such as gaming devices typically found in arcade and casino environments, including arcade games, video games, gambling machines, video poker machines, slot machines, etc. In at least one embodiment, gaming device 14 is further adapted to allow a player to place a wager and play a game, such as a slot machine.

[0077] Gaming device 14 may include a wager or value acceptor for accepting value (including currency and/or currency equivalents), such as a coin slot 16, card reader 18, or a voucher reader 19. In addition, a payout mechanism (not shown) and a coin receptacle 20 may be provided for awarding prizes or for dispensing value to players cashing out and retiring from a game. A printer (not shown) may also be provided for printing out cashless vouchers (not shown). A handle 22 and an input device 24 may be provided for activating gaming device 14 to begin a game. A pay table (not shown) may further be provided to allow a player to see what symbol or combination of symbols provide a winning event. In at least one preferred embodiment, gaming device 14 may be a S2000 or S Plus model gaming device manufactured by International Game Technology in Reno, Nev.

[0078] Gaming device 14 may further include a gaming outcome display 28 that may be positioned in front of the gaming device 14 so that a player (not shown) playing gaming device 14 can see gaming outcome display 28. Gaming outcome display 28 may utilize physical game reels 30, 32, and 34. Game reels 30, 32, and 34 may be attached to a drive mechanism (not shown) of gaming device 14 to rotate the reels in a manner well known in the art. Each game reel 30, 32, and 34 may have a plurality of symbols positioned on the circumference of each game reel 30, 32, and 34. Game reels 30, 32, and 34 may be positioned side-by-side with coincident axes of rotation, and a portion of their individual circumferences may face outward from gaming device 14.

[0079] A panel 36 may cover game reels 30, 32, and 34 such that only a portion of their individual circumferences are shown to the player. At least one symbol from any of game reels 30, 32, and 34 may be used to display a game outcome. At least one pay line 38 may be provided for the player to use in determining a game outcome based on the symbol or a combination of symbols positioned thereon. In an alternative embodiment, gaming outcome display 28 utilizes a video display (FIG. 1b) displaying images of game reels and an image of at least one pay line. A video display may also display game symbols in many other formats and arrangements, such as playing cards. Of course, the invention is not limited to any particular type of gaming outcome display 28. Those of skill in the art will recognize that many different types of gaming outcome displays could be substituted without departing from the scope of the present invention.

[0080] Gaming apparatus 10 may include a second display 12 configured to display at least one game and prize to a player. In at least one embodiment, second display 12 is configured to display a bonus game and at least one bonus

prize to the player. In other embodiments, second display 12 may provide a primary game. Alternatively, second display 12 may be a stand-alone device allowing a player to place a wager and play a game.

[0081] In at least one embodiment, second display 12 is attached to gaming device 14 and positioned on top of gaming device 14. In other embodiments (not shown), second display 12 may be separate from gaming device 14 but in communication with gaming device 14. In this embodiment, second display 12 may be in communication with a plurality of different gaming devices 14 via a computer network in a manner that is well known in the art. Second display 12 may also be positioned adjacent to or remote from gaming device 14. In other embodiments, second display 12 is a stand-alone display not in communication with gaming device 14, and it may be capable of independently accepting wagers, conducting games, and awarding prizes to a player.

[0082] With continued reference to FIG. 1a, second display 12 may comprise a housing 40. Housing 40 may be arc-shaped and comprise a plurality of walls defining an internal space or cavity. Of course, housing 40 may be made in many different shapes. Second display 12 also may have an indicator 43. Indicator 43 may be a variety of indicators, including two and three-dimensional indicators.

[0083] Indicator 43 and display device 42 may be positioned within housing 40. Indicator 43 may be configured to move vertically (up and down) relative to second display 12 in response to signals sent either by a controller (not shown) or a combination of an input device (not shown) and a controller (not shown). The number of indicators 43 may vary, and the direction of their movement may vary, and may include horizontal, zigzag, and/or diagonal movements.

[0084] The shape or appearance of indicator 43 may be designed in various forms and, preferably according to a theme of a game. In the example shown in FIG. 1a, the theme of the game is a gaming device that awards players with vacations. Accordingly, indicator 43 is in the form of a vacationing person in a swimming outfit and in a swimming floatation tube. Indicator 43 may include a pointer portion 64. Pointer portion 64 may be configured to point to at least one indicium 44. Alternatively, indicator 43 may itself be a pointer, such as an arrow. The present invention is not limited to any particular type of indicator or pointer, or any particular representation of an indicator or pointer.

[0085] Indicia 44 may be affixed, imprinted, engraved, or otherwise represented on display device 42. Display device 42 may have indicia 44 arranged in rows 44a-c. Each row 44a-c may include multiple indicia 44. Indicia 44 may represent various things, including prize amounts, multipliers, descriptions or representation of merchandise or services, progressive prizes, or jackpot prizes. In the embodiment shown in FIG. 1a, display device 42 is configured to present moveable indicia 44, which may move in various directions. As shown in FIG. 1a, indicia 44 move horizontally, or on a rotational axis parallel to the vertical movement of indicator 43. Of course, indicia 44 could be configured to move up and down, that is, display device 42 may have a horizontal rotational axis.

[0086] Certain embodiments of the present invention may provide display devices 42 with indicia 44 moving on a first

axis and an indicator 43 moving on a second axis, wherein the moveable indicator 43 is able to indicate an indicia 44 on the display device, which may be configured to move on an axis orthogonal to the axis of indicator 43.

[0087] Referring now to FIG. 1b, a schematic diagram of some components that may be included in certain embodiments of gaming apparatus 10 (FIG. 1a) is shown. Gaming apparatus 10 may include value acceptor 16, 18, and 19 configured to accept value from the player in the form of paper currency, coins, player cards, tickets, vouchers, tokens, or other forms of value. Value acceptors 16, 18, and 19 may be in communication with controller 51. Controller 51 may be in communication with an input device 24. Controller 51 may detect insertion of value into value acceptors 16, 18, and 19, and may prompt the player to start a game by activating input device 24. Once controller 51 senses a signal to start the game, controller 51 may be configured to produce a random number and activate reel mechanism 53 of gaming device 14. Reel mechanism 53 may be configured to display indicia (including symbols, characters, numbers, letters, pictures, and the like) on game reels 30, 32, and 34 according to the random number generated by controller 51. Alternatively, controller 51 may be configured to produce a random number and activate a video display 55 of reel images on gaming device 14. The video display 55 of reels may be configured to display indicia in video form according to the random number generated by controller 51. The primary game of gaming device 14, whether in physical form or in video form, is not limited to reel-type games, but may include card games, dominoes, roulette, craps, baccarat, and other games.

[0088] Gaming apparatus 10 may further include speakers 69 and 70, housing lights 59, display device 42, indicator 43, and pointer portion 64 in communication with controller 51. Controller 51 may store bonus event information and may have the ability to detect bonus events.

[0089] Upon an occurrence of a bonus event, controller 51 may activate speakers 69 and 70, housing lights 59, and display device 42, which causes indicia 44 to move. Controller 51 may cause indicator 43 to move around an area adjacent to display device 42. Controller 51 may then cause indicator 43 to stop, and pointer portion 64 to point to one of the indicia 44 on display device 42. Housing lights 59 and speakers 69 and 70 together may create a festive and lively winning atmosphere to elicit interest and entertainment from both the player and adjacent patrons.

[0090] In at least one embodiment, when gaming apparatus 10 is not in use, indicator 43, housing lights 59, and display speakers 69 and 70 may be activated by controller 51 in an attract mode. Housing lights 59 may operate, blink or flash, and indicator 43 may dance or move in a choreographed manner according to music coming from speakers 56. It may be desirable that indicator 43 not point to an indicium 44 at the conclusion of the attract mode in order that players close to gaming device 10 do not mistakenly believe they are entitled to a prize. Controller 51 may activate display device 42 and indicator 43 upon the occurrence of a bonus event.

[0091] Referring now to FIGS. 2a and 2b, in at least one embodiment, display device 42 (FIG. 1a) comprises a flat piece of material or band 46 wrapped around a plurality of rollers 48 and 50. Rollers 48 and 50 rotate band 46 about an

axis 47. Rollers 48 and 50 may be rotatably connected to chassis 52 and 54 and may be connected to an actuator (not shown). Band 46 has indicia 44 thereon. Indicia 44 may be affixed to band 46 by various methods. Indicia 44 may be imprinted on band 46 in different configurations depending on the desired appearance of indicia 44 when band 46 is presented on second display 12. In the embodiment shown in FIG. 1a, band 46 may move from left to right relative to second display 12 or vice-versa. Thus, indicia 44 are displayed in horizontal rows.

[0092] In at least one embodiment, a light matrix 56 is positioned behind band 46 to back-light indicia 44. Light matrix 56 may comprise light emitting diodes (LEDs), fluorescent lights, incandescent lights, or other illumination devices that may make band 46 more attractive. A suitable display device 42 may be obtained from Starpoint Electronics Ltd. of Chessington, UK (model FM2).

[0093] In another embodiment, display device 42 may comprise at least one conventional reel assembly (not shown). A conventional reel assembly typically includes at least one chassis, an axle attached to the chassis, and a reel attached to the axle. The reel and chassis are typically coupled to an actuator that drives the axle, thereby rotating the reel. The reel typically has a strip of material attached to the circumference of the reel. Indicia are typically affixed to the strip of material by methods known in the art. Conventional reel assemblies may be joined in series, typically in a set of three.

[0094] The reel assembly may be positioned within housing 40 (FIG. 1a) so that the reel rotates about either a horizontal or vertical axis. Display device 42 may utilize the reel assemblies described in co-pending U.S. application Ser. No. 09/894,197, filed Jul. 27, 2001 and U.S. application Ser. No. 09/968,952, filed Oct. 1, 2001, which are incorporated herein by reference. U.S. application Ser. No. 09/894,197 discloses reel shelf assemblies arranged vertically so that each reel rotates about a vertical axis. U.S. application Ser. No. 09/968,952 discloses reel shelf assemblies having reels that are positioned at an angle relative to each other, side-by-side so that their chassis are away from the two reels positioned adjacent to each other, or combinations thereof.

[0095] Referring now to FIG. 3, indicator 43 (FIG. 1a) may be coupled to a positioning mechanism 72 by a bracket 74. Positioning mechanism 72 may be located within the confines of housing 40. A slot 76 in the front wall of housing 40 may be provided, which allows bracket 74 to pass through the front wall. Positioning mechanism 72 may comprise a worm gear 78 rotatable by an actuator 80. In at least one embodiment, actuator 80 is attached to a first wheel 84. Worm gear 78 may be attached to a second wheel 86. A drive belt 82 preferably rotates around the first wheel 84 and second wheel 86, thereby connecting actuator 80 and worm gear 78. Positioning mechanism 72 may communicate with a controller 81, which may store information regarding pre-determined positions of band 46 of display device 42. Sensors 88 and 90 are preferably in communication with controller 81 and may be provided to allow controller 81 to detect the position of indicator 43. Other devices may be used to detect the position of indicator 43, such as optical readers and the like.

[0096] Referring now to FIG. 4, another embodiment of a positioning mechanism 150 is shown. Positioning mecha-

nism **150** may be a vertically positioned worm gear **152** that is caused to rotate by an actuator **154**. Indicator **43** may be attached to worm gear **152** by a bracket **156** that is attached to a nut **158** threaded on worm gear **152**. A slot **160** may be provided in the front wall of second display **12** (FIG. 1a), which allows bracket **156** to pass through the wall. Sensors **162** may be provided to allow controller **140**, or other control mechanisms (not shown), to detect the position of indicator **43**. While indicator **43** is shown to move vertically in FIG. 4, it may be moved in any desired manner, including horizontally, diagonally, or in a non-linear fashion, such as in a rotating or zigzag manner.

[0097] In another embodiment, a wheel (not shown) may be attached to actuator **154**. The periphery of the wheel may have at least one notch detectable by a sensor (not shown) and used by a bonus game controller **141** or a game controller **140** to monitor the position of indicator **43**. Wheel and worm gear **152** may be rotated together by actuator **154**. The sensor monitors the position of indicator **43** by detecting the notch. Bonus game controller **141** or game controller **140** may store information pertaining to the number of times the sensor has detected the notch and the corresponding position of moveable indicator **43**. An optical interrupt (not shown) may be provided to reset the indicator position information. The sensor may be an infrared source and detector. In alternative embodiments, the periphery of the wheel may comprise portions with different reflective characteristics, such as absorbent paint lines, instead of a notch on the wheel. Actuators **80** (FIG. 3) and **154** may be a stepper motor, a servo motor, a gear motor, a solenoid, a rack and pinion, or other actuators known in the art.

[0098] With continued reference to FIG. 4, an electronic controller **140** that utilizes a random number generator **142** may control gaming device **14** (FIG. 1a). Random number generator **142** produces a random or pseudo random number for each game. The outcome of the game may be determined by comparing the random number produced by random number generator **142** to a table of outcomes stored in a memory and accessed by controller **140**. A number of different tables of outcomes may be used and different tables may be used for different games. The tables can be designed so that different prizes have different probabilities of being awarded. Such design techniques are well known in gaming and are described above. Examples of such designs are shown in U.S. Pat. No. 4,448,419, issued to Telnaes, and U.S. Pat. No. 5,456,465, issued to Durham, which are hereby incorporated by reference. Controller **140** may cause gaming outcome display **28** (FIG. 1a), e.g., game reels **30**, **32**, and **34**, to display an outcome that corresponds to the random number generated by random number generator **142**. Of course, gaming device **14** may operate in many other ways and still achieve the objects of the present invention.

[0099] Gaming device **14** may also be capable, via controller **140** or other control mechanism (not shown), of producing a bonus-activating event. This event may be many different types of events. For example, a bonus-activating event may comprise a game outcome such as displaying a particular symbol, e.g., a “bonus” symbol, or combination of symbols, such as a “7” symbol on each of game reels **30**, **32**, and **34** (FIG. 1a). If the game being played is poker based, the bonus-activating event may be an occurrence of a certain hand, such as a royal flush. Furthermore, a bonus-activating event may occur when a player accumulates a number of

symbols or game outcomes over a number of separate game plays. For example, a bonus-activating event may occur when the player receives three “bonus” symbols during a period of time. The bonus-activating event may be based on an external event. For example, a bonus-activating event may occur when a group of players obtain a certain result. Sensors (not shown) may be provided external to gaming device **14** to detect external bonus-activating events.

[0100] Bonus game controller **141** may further be provided to detect when a bonus activating event occurs in gaming device **14**. Gaming device controller **140** may determine the outcome of each game, and when a bonus-activating outcome occurs, gaming device controller **140** may transmit a signal to bonus game controller **141**. Alternatively, bonus game controller **141** may periodically interrogate gaming device controller **140**. Bonus game controller **141** and gaming device controller **140** may be a single controller or separate controllers. In at least one embodiment, gaming device controller **141** is the GAM **2000** controller, available from Eagle Engineering of Pottstown, Pa.

[0101] The bonus prize may be determined by a random number generator (not shown) and a virtual pay table, such as the pay table described in U.S. Pat. No. 5,823,874 to Adams, which is hereby incorporated by reference. A simple pay table may also appear as follows:

TABLE 1

Random Number	Amount Paid
0.00 to 0.50	\$10.00
0.51 to 0.75	\$50.00
0.76 to 0.95	×2
0.96 to 1.00	\$10,000.00

[0102] For example, if the random number generator produced 0.45 as the game outcome, the controller may cause indicator **43** (FIG. 1a) to stop and pointer portion **64** (FIG. 1a) to point to an indicium representing ten dollars. Alternatively, if the random number generator produced a value of 0.85, the controller may cause indicator **43** to stop and pointer portion **64** to point to an indicium **44** representing a multiplier of 2. The controller may then cause bonus meter **68** (FIG. 1a) to display “10×2=20,” (assuming a base prize of ten dollars) and \$20.00 would be awarded to the player.

[0103] The bonus selection process may be repeated for a predetermined number of times to accumulate several bonus prizes that are added to form the award to the game player. For example, the bonus game could be repeated three times to accumulate an award. The present invention is not limited to the example pay table shown. Furthermore, different kinds of bonus prizes may be awarded, such as progressive prizes, jackpot prizes, merchandise, services, prize multipliers, and additional games. Other effects may also be presented, such as pre-recorded sound from speakers **69** and **70** (FIG. 1a).

[0104] Speakers **69** and **70** may be configured to announce a prize a player has won, play music during a prize winning event, announce features of the game offered by gaming apparatus **10**, or play music to attract and entertain patrons. Additionally, a variety of graphics and lights, preferably designed according to a particular theme, are displayed on

second display 12 (FIG. 1a). If the awarded bonus prize is money, the amount of the bonus prize may be added to the player's credit meter (not shown), may be dispensed to the player via a voucher or other cashless device, may be dispensed to coin receptacle 20 (FIG. 1a), or an attendant may be summoned to award the prize to the player.

[0105] Referring now to FIG. 5, another embodiment of a gaming apparatus 100, similar to gaming apparatus 10 (FIG. 1a), is shown. Prize display 102 of gaming apparatus 100 may comprise display device 42. In this embodiment, band 46 is configured to move vertically around a horizontal axis of rotation. Prize display 102 also may comprise an indicator 104 that is similar to indicator 43 (FIG. 1a). Indicator 104 may have an appearance that conforms to a theme of the game, which is a detective game in this embodiment. Thus, indicator 104 may look like a detective, such as a man wearing a trench coat and a hat. In the embodiment illustrated in FIG. 5, indicator 104 moves horizontally. Indicator 104 may have a pointer portion 106. As shown in FIG. 5, pointer portion 106 is in the form of the detective's magnifying glass. The magnifying glass may be real or fake. If it is desired to have a functioning magnifying glass, the magnifying glass may comprise a standard magnifying lens, a fresnel lens, or other device known in the art. Pointer portion 106 may be configured to substantially cover an indicium selected by the controller (not shown) and magnify the indicium for the player to see. The mechanism for driving indicator 43, described above and shown in FIGS. 3 and 4, may be used for driving indicator 104.

[0106] Referring now to FIG. 6, a gaming method 110 is shown wherein a player starts to play a game at step 111. A controller, such as controller 51, 81, 140 or 141, determines whether a prize event has occurred in step 112. If a prize event has occurred, the controller produces a random number at step 114. At step 116, the random number may be used to select a prize. At step 118, the controller may activate display device 42. At step 120, the controller may cause indicator 43 or 104 to move. Optionally, at step 122, the controller may allow a player to control the movement of indicator 43 or 104 by prompting the player to press one or more buttons (such as a button to move indicator 104 right and a button to move indicator 104 left) or another input device, such as a touch-pad, a joystick, or a mouse. At step 124, the controller causes indicator 43 or 104 to stop. Optionally, at step 126, the controller stops indicator 43 or 104 upon the activation of an input device by the player. At step 128, the controller causes display device 42 to stop in a manner that would make indicator 43 or 104 point to the corresponding symbol that would indicate the prize selected based on the random number previously generated by the controller. At step 130, the prize may be displayed on the bonus meter. Steps 118 to 128 may be repeated a predetermined number of times, and the sum of the prize values may be displayed. Lights and sounds may be generated to create a festive atmosphere. At step 132, a total prize may be awarded to the player. The cumulative prize may be multiplied by a multiplier in order to obtain the total prize. The multiplier may be fixed or randomly determined.

[0107] It is noted that the flowchart in FIG. 6 shows only one possible embodiment. Some of the steps in the flowchart may be varied, changed in order, or eliminated and still fall within the scope of the present invention.

[0108] FIG. 7 shows an additional alternate embodiment of a gaming device according to the present invention. FIG. 7 shows a gaming device 200 having a gaming apparatus 202 and a gaming display 204, which may display all or part of a bonus game or primary game. Gaming apparatus 202 may be configured similarly to previously discussed embodiments, and may include a plurality of mechanical or video reels 210 located on primary game display 208. A plurality of indicia 212 may appear on reels 210. A pay line 226 may be included to assist players in determining whether they have won the game. Value acceptors, including a coin acceptor 228 and bill acceptor 224, may be included. The player may activate the game via button 218 or an arm 216.

[0109] Game apparatus 202 may operate in conjunction with gaming display 204. The appearance of one or more indicia 212 on pay line 226 may entitle the player to play gaming display 204. An example of bonus qualifying indicia is indicium 214.

[0110] Gaming display 204 may contain a band of material 240 that rotates about a plurality of rollers 246. Band 240 may have a plurality of indicia 244 appearing thereon. Indicia 244 may indicate various prizes. Band 240 may have an edge 256.

[0111] Band 240 may resemble a printing press, including a magazine printing press, a newspaper printing press, and a money printing press. As shown in FIG. 7, a least a portion of rollers 246 are arranged such that band 240 is displayed at a first position 268 of gaming display 204 located towards the front of gaming display 204. Band 240 then may be directed to a second position 270 of gaming display 204, such as passing behind roller 274, where band 240 is located more in an interior portion of gaming display 204. Band 240 may then be directed to a third position 272, which may be in the same plane as first position 268, located towards the front of gaming display 204. In this way, band 240 may appear to be passing through a printing press.

[0112] As illustrated in FIG. 7, band 240 appears to be a sheet of uncut paper currency, such as might be produced by the U.S. Treasury Department. Indicia 244 may appear to be currency bills having various values. Indicia 244 may indicate prizes such as an award of currency or credits, merchandise, services, game play, jackpots, and progressive prizes. Band 240 may have a variety of different indicia 244 imprinted, or otherwise appearing thereon.

[0113] Band 240 may be constructed from any suitable material. Band 240 may be constructed from a flexible material, such as various types of vinyl, plastic, rubber materials, and the like. The use of a flexible material may prevent band 240 from tearing or creasing when it is moved. The material used to construct band 240 may be transparent or translucent, allowing band 240 to be backlit.

[0114] Band 240 may be coupled to a drive mechanism (not shown in FIG. 7) so that band 240 may be rotated about rollers 246. In operation, band 240 may be actuated prior to a bonus prize being awarded to the player. Indicia 244 that may be awarded may appear in a particular area, such as display area 260, for display to the player. Display area 260 may be lighted or otherwise brought to the player's attention.

[0115] In at least one embodiment, an indicator 250 is included that may point to particular indicia 244. Indicator

250 may be configured to point to an indicium **244** that conveys the outcome of gaming display **204**. As shown in FIG. 7, indicator **250** is moveable in a horizontal manner. However, gaming display **204** is not limited to any particular configuration, and indicator **250** may move vertically, diagonally, or in a non-linear manner, as desired by the game designer. Indicator **250** may be lit, such as by lights **252**, in order to make indicator **250** more attractive and to call attention to indicator **250**. In at least one embodiment, indicator **250** is illuminated only when gaming display **204** is active or when gaming display **204** is in an attract mode (such as has been previously described).

[0116] At least one advantage of band **240**, as illustrated in FIG. 7, is that it may provide a relatively long path length. Accordingly, it may allow for more and/or larger indicia **244** to be included on band **240**. A transparent bezel **256** may be mounted to the housing to cover the edge **256** of band **240**.

[0117] FIG. 8 illustrates certain components of a band display **300** that may be included in a gaming device according to the present invention, including that depicted in FIG. 7. Band display **300** may include a display device **302**. FIG. 8 illustrates band **240** wrapped around a plurality of rollers **246**. In at least one embodiment, all rollers **246** are idler rollers that simply guide band **240** about the interior of gaming display **204**. One suitable roller is model number E8S001-01-ZZZZ available from Starpoint Electronics, Ltd. of Chessington, UK. A driven roller may be included to drive band **240**. Driven roller **320** may be in communication with an actuator **310** in order to drive rotation of driven roller **320**. One suitable driven roller is model E8S002-01-ZZZZ from Starpoint.

[0118] In at least one embodiment, band **240** is driven simply by frictional contact with roller **320**. However, other arrangements may be substituted without departing from the scope of the present invention. For example, roller **320** may have a portion with teeth (not shown) that could engage slots or holes (not shown) in band **240**.

[0119] Actuator **310** may be any number of suitable actuators, such as motors, including stepper motors, gear motors, and servo motors. Actuator **310** may rotate a shaft **312** in connection with a wheel **314**. A belt **316** may link wheel **314** to a shaft **318** of driven roller **320**. Rotation of shaft **312** drives wheel **314** which in turn drives belt **316**. The rotational force is passed from belt **316** to shaft **318**. Rotation of shaft **318** may drive rotation of roller **320**. Frictional contact with rotating driven roller **320** moves band **240**. Optionally, an idler wheel or pulley (not shown) can be included on the opposing side of band **240** in order to increase the frictional contact of band **240** with driven roller **320**.

[0120] In another embodiment, actuator **310** may be a stepper motor rotating a drive gear (not shown). The drive gear may be in communication with a spur gear (not shown) driving an idler shaft (not shown). The idler shaft in turn may be in communication with driven roller **320**. The idler shaft may also be used to help transfer power to the side of band **240** not located by actuator **310**.

[0121] In at least one embodiment, band **240** may pass over an area proximate indicator **250**. As shown in FIG. 8, indicator **250** may be attached to a worm gear **340**. Worm gear **340** may be in communication with a suitable actuator **332**, such as a servo motor, stepper motor, or the like.

Indicator **250** may be attached to a bracket **342**. Bracket **342** may be threadably attached to worm gear **340**.

[0122] In at least one embodiment, indicator **250** includes one or more lights **252** in order to call attention to indicator **250** and make indicator **250** more attractive. Lights **252** may be of any suitable type, including light emitting diodes (LEDs). Both lights **252** and indicator actuator **332** may be in communication with a controller, such as controller **360**.

[0123] Controller **360** may direct lights **252** to illuminate and deactivate in accordance with game events, such as the execution of an attract mode, or a game outcome qualifying a player to play gaming display **204**. Controller **360** also may direct the movement of indicator **250**. For example, controller **360** may move indicator **250** upon activation of gaming display **204**. Controller **360** may direct indicator **250** to stop, such as when a player activates player input device **222**.

[0124] Controller **360** also may determine the position of indicator **250**, for example if the controller is preset with the starting position of indicator **250**, controller **360** may track the position of indicator **250** by knowing in which direction (or directions) indicator **250** was moved, how fast it was moved, and for what period of time. Depending on the actuator **332** used, actuator **332** may provide feedback as to the position of indicator **250** (for example, if an indexing stepper motor is used).

[0125] It may be beneficial to provide an additional position sensor for indicator **250**. Those of skill in the art will recognize that various types of sensors could be used to track the position of indicator **250**. In one embodiment, optical sensors are used. For example, an infrared signal generator may be included on one side of worm gear **340** (FIG. 9). An infrared detector may be placed on the other side of worm gear **340** (FIG. 9). When indicator **250** is not in between the generator and detector, the detector detects the infrared signal. When indicator **250** is interposed between the signal generator and detector, the detector does not detect a signal. Therefore, when the signal is interrupted, controller **360** knows the position of indicator **250**. Such a positioning system may be a useful way to calibrate indicator **250**.

[0126] Of course, other systems can be used, or additional signal generators and detectors used, including those that may allow for constant tracking of indicator **250**. For example, an optical sensor (not shown) may be attached to bracket **342**. Optical readable indicia and patterns may be placed along worm gear **340**. As bracket **342** travels along worm gear **340** the sensor may read the indicia or patterns and communicate the position of indicator **250** to controller **360**.

[0127] Controller **360** may also be in communication with a housing **328** that may have a plurality of lights **330**. Lights **330** may be any suitable illumination device, including LEDs, fluorescent lamps, and incandescent lamps. Lights may be arranged in an array **334**. Lights **330** may be activated by signals sent from controller **360** in response to game events. Lights **330** may be used to backlight band **240**. Illumination of band **240** may result in a more appealing look for gaming display **204** and call more attention to the area of band **240** on which indicator **250** may indicate a prize.

[0128] Housing **328** may also contain a guide **326**. Guide **326** may provide a surface to help position band **240**. For

example, guide **326** may help maintain band **240** in a taut position, and keep band **240** from wrinkling, creasing, tearing, or getting caught in any of the actuating mechanisms, including the actuating mechanism for indicator **250**.

[**0129**] Controller **360** may also be in communication with a positioning system for band **240**. It may be beneficial to be able to track the position of band **240**. For example, when a game outcome is determined, it is important to make sure that indicator **250** points to the appropriate indicium or indicia on band **240**.

[**0130**] Many suitable positioning systems can be used, including those used for indicator **250**. For example, an infrared signal source **362** can be included on one side of band **240**. An infrared detector **364** may be located on the opposing side of band **240**. Infrared blocking materials may be placed at one or more locations on band **240**. By tracking when the infrared signal is blocked, controller **360** may be able to calibrate and/or constantly track the position of band **240** and any indicia appearing thereon.

[**0131**] In an alternative embodiment, a side of band **240** contains a series of holes (not shown), cut-out portions, or similar optical interrupts. The optical interrupts may be read by an optical reader (not shown). The optical interrupts may convey the position of band **240** to controller **360**.

[**0132**] Of course, gaming display **204** may be calibrated by the gaming operator from time to time, and position data from actuator **310**, such as an indexing stepper motor, may also be used to track the position of band **240**.

[**0133**] In at least one embodiment, the components of band display **300** shown in FIGS. **8** and **9** are modular in nature. That is, band **240**, indicator, **250**, and their actuating mechanisms may be added and removed from a gaming device as a unit. For example, as shown in FIG. **8**, a hook **304** having a slot **306** may be attached to the frame of band display **300**, such as by fasteners **308**, such as bolts or rivets. A receiver (not shown), such as a bar, may be provided within the gaming device for attachment to hook **304**.

[**0134**] FIG. **9** presents an alternate view of a gaming device according to the present invention. Portion **370** is a cut away view of the inner portion of an embodiment of gaming display **204**. Portion **372** is an outer view of the embodiment.

[**0135**] In FIG. **9**, it can be seen that in at least one embodiment, rollers **246** are fitted with a plurality of wheels **380**. Wheels **380** may be made of a material that maintains strong frictional contact with band **240**. Wheels **380** are preferably constructed of, or coated with, a relatively non-abrasive material so as not to damage band **240**. For example, wheels **380** may be made of various types of rubber, plastic, and similar materials.

[**0136**] Rollers **246** may be provided with a tensioning system that may both help maintain the position of rollers **246**, and maintain pressure on rollers **246** in order to ensure that band **240** is taut. The tensioning system may include a base **381**, which may be mounted to the frame of gaming display **204** (FIG. **7**). Base **381** may be coupled to a biasing device **383**, such as a spring. Biasing device **383** may be coupled to a moveable mounting area **385**. Moveable mounting area **385** may be moved along a track **387**.

Moveable mounting area **385** may include a plate **389** that is mounted to biasing device **383**.

[**0137**] Roller **246** may include a pin **391** and a shaft end **393**. Pin **391** may be held within roller mounting area **395**. Roller mounting area **395** may include a raised area defining a hole (not shown). When roller **246** is inserted, biasing device **389** will push roller **246** against band **240**. Roller **246** may then rotate about pin **391** while keeping band **240** taut.

[**0138**] FIG. **9** also provides additional detail for a suitable actuator and positioning system for indicator **250**. As was previously described, indicator **250** may be attached to worm gear **340** by bracket **342**. Worm gear **340** may be actuated by actuator **332**. Actuator **332** maybe attached to pulley **382** (which may be a timing pulley). A belt **384** (which may be a timing belt) may be attached to pulley **382** (which may be a timing pulley) and in contact with shaft end **386** of worm gear **340**. A positioning system, such as infrared signal generator **390** and infrared detector **392**, may be included in order to assist in tracking the position of indicator **250**. In at least one embodiment, actuator **332** is stepper motor model HT23-396, available from Applied Motion Products of Watsonville, Calif.

[**0139**] In at least one embodiment, bracket **342** is configured to resist rotating as it travels along worm gear **340**. One way this may be achieved is to include a rail **343** that runs parallel to worm gear **340**. Bracket **342** may be coupled to rail **343**. Rail **343** will prevent bracket **342** from rotating, while allowing linear movement along worm gear **340**.

[**0140**] Turning now to portion **372** of FIG. **9**, there is illustrated a number of indicia **244** appearing on band **240**. As shown in FIG. **9**, indicia **244** are representations of faux paper currency having various representations. Of course, any suitable indicia **244** may be placed on band **240**. Indicia **244** may be chosen to be relevant to a theme of gaming device **200**, or gaming display **204**, such as the "Bank Roll" theme shown in FIGS. **7** and **9**.

[**0141**] Indicia **244** may represent prizes that a player may be awarded. For example, indicia **394** may represent an amount of money or gaming credits. Indicia **396** may represent a multiplier by which the player's winnings from one or more gaming rounds may be multiplied. Indicia **398** may represent special awards, such as a good, a service, a jackpot, or a progressive amount. Of course, indicia **244** may represent many other prizes without departing from the scope of the present invention.

[**0142**] In certain embodiments, portion **372** may include a slot **388**. A portion of indicator **250** or bracket **342** may extend through slot **388**. Slot **388** may allow indicator **250** to be displayed to the player, and actuated, but hides the inner workings of gaming display **204** (FIG. **7**) from the player. Of course, other means of hiding the inner workings of gaming display **204**, including the actuation system for indicator **250**, from the player could be used. For example, rather than a slot, the actuation mechanism could be located below the area of gaming display **204** viewable by the player. Indicator **250** could be attached to the actuation mechanism in this area, and then extend upward into the area viewable by the player.

[**0143**] As illustrated in FIGS. **7** and **9**, in certain embodiments pointer **250** moves along a first axis. Band **240** (which may function as a display surface) moves along a second

axis. Indicia 244 appearing on band 240 move along the second axis as band 240 moves. In certain embodiments, the first axis is orthogonal to the second axis. The first and second axes may be used to define a coordinate system, with each indicia 244 appearing on band 240 corresponding to a specific coordinate in the system. Controller 360 may be programmed with the coordinates of each indicia 244, allowing controller 360 to ensure that the proper indicium or indicia 244 corresponding to a game outcome is displayed once band 240 and indicator 250 are stopped.

[0144] One method of operation 500 of an embodiment of the present invention, such as the device depicted in FIG. 7, is illustrated in FIG. 10. A game is presented to a player in step 502. At decision 504, method 500 checks to see if the player has placed a wager. If not, method 500 returns to step 502.

[0145] If the player places a wager at decision 504, method 500 proceeds to determine a game outcome in step 506. The outcome is presented to the player at step 508. At decision 510, method 500 checks to see if the game outcome determined in step 506 is an outcome qualifying the player to play a bonus game. If not, method 500 proceeds to step 512 and awards the player any prizes awarded according to the game outcome determined in step 506, and returns to step 502.

[0146] If it is determined in step 510 that the game outcome of step 506 qualifies the player for a bonus game, method 500 proceeds to step 514. At step 514, gaming display 204 is activated. This may include activation of band 240, indicator 250, and player input device 222. Lights and sounds may also be activated to make the event more exciting to the player and those around the player, as well as to call attention to the device.

[0147] Method 500 then proceeds to step 516 where band 240 is actuated. In step 518, the player may be allowed to control the movement of indicator 250 using player input device 222. For example, in the device depicted in FIG. 7, the player may be allowed to move the indicator left and right, and to stop the indicator at a desired location.

[0148] Method 500 proceeds to decision 520, which checks to see whether indicator 250 has been stopped. If indicator 250 has not been stopped, method 500 returns to step 516 and continues to move band 240 and allow the player to move indicator 250.

[0149] If decision 520 determines that the player has stopped indicator 250, method 500 proceeds to step 522. At step 522, a controller (which may be controller 51, 81, 140, 141, or 360) continues to move band 240 until the indicium corresponding to the game outcome is indicated by indicator 250. Method 500 then awards any prizes to the player in step 524 and returns to step 502.

[0150] Of course many variations of this method can be made without departing from the scope of the present invention. For example, the game outcome determined in step 506 can include both the outcome of the primary game and the bonus game. Alternatively, the bonus game outcome can be determined in a separate step once the bonus game begins.

[0151] FIG. 10 illustrates a method where band 240 moves at the same time a player is positioning indicator 250. In

another embodiment, band 240 may be stationary while the player positions indicator 250. Once the player has chosen a position for indicator 250, band 240 can be moved until the appropriate indicium is indicated by indicator 250.

[0152] The player could be allowed to select the position of indicator 250 in a variety of ways. For example, the player could be provided with directional buttons and a stop button. Alternatively, indicator 250 could be moved in an automated fashion by controller 360. The player could activate a stop button when indicator 250 is at the position the player desires.

[0153] As may be apparent from the above description, it may be desirable to arrange indicia 244 on band 240 such that enough of each type of indicia 244 are included in order that any indicia can be indicated by indicator 250 at any position to which indicator 250 is moved. For example, in the embodiment illustrated in FIG. 7, indicia 244 are illustrated as appearing in a matrix of rows and columns, with indicator 250 being positionable at a particular column. Accordingly, it may be beneficial to have at least one of the indicia 244 representing each prize that may be awarded appear on at least one row of each column of band 240.

[0154] An alternative method of operation 600 is illustrated in FIG. 11. Steps 602-612 may correspond to steps 502-512 described above. At step 614, gaming display 204 may be activated, including band 240, indicator 250, and player input device 222. Lights and sounds may be activated, as previously described. Band 240 and indicator 250 are moved at step 616.

[0155] Decision 618 checks to see whether player input device 222 has been activated. If input device 222 has not been activated, method 600 returns to step 616. If player input device 222 has been activated, band 240 is stopped at step 620. Band 240 may be stopped quickly or may gradually come to a stop.

[0156] Method 600 then proceeds to step 622. At step 622, indicator 250 is moved to indicate the indicium or indicia conveying the outcome of the bonus game. Any prizes are awarded in step 624, and then method 600 returns to step 602.

[0157] Method 600 may be configured to allow a player to stop band 240 in a specific position, or simply to choose when band 240 will begin to stop. If the player is allowed to choose a specific position for band 240, it may be desirable to have at least one of each prize represented by indicia 244 that may be awarded appear on each row of band 240. Of course, if the player may not choose the exact position of band 240, it may be less desirable to include every indicia 244 on each row. Indeed, not allowing the player to choose an exact position for band 240 may allow a greater variety of indicia 244 to be presented on band 240.

[0158] Another gaming method 700 is illustrated in FIG. 12. Steps 702-712 may correspond to steps 502-512 and 602-612 described above. At step 714, one or more player input devices are activated that allow a player to select one or more specific indicator positions. For example, indicia 244 on band 240 could be formed in a plurality of columns. The player input device(s) may allow a player to position indicator 250 by a specific column.

[0159] At step 716, method 700 checks to see if the player has provided input. If not, method 700 cycles back to step

714 until input is provided. Once the player has provided input, method 700 proceeds to step 718 and moves indicator 250 to the position selected by the player. At step 720, the display is moved so that indicator 250 points to the indicium conveying the game outcome. Any prize or prizes are awarded in step 722 and then method 700 may return to step 702.

[0160] In an alternative embodiment, the player may be allowed to choose a position after the game is begun. In any embodiment, the player's choice of position for indicator 250 might be reflected on band 240, such as illuminating a column of band 240 corresponding to the pre-set position of indicator 250 chosen by the player.

[0161] Various additions, subtractions, and permutations of the steps in the above described methods can be made without departing from the scope of the present invention. For example, the player may be allowed to select both the position of indicator 250 and to indicate when band 240 should begin to stop (although not the final position of band 240). The more the player is allowed to interact with gaming apparatus 202, the more control over the outcome of the game the player may feel, which may make the game more enjoyable to the player. Of course, regulatory concerns may dictate that the player's perceived control be largely or completely illusionary.

[0162] Methods of operating gaming display 204, including methods 500, 600, and 700, may be set to automatically stop band 240 and/or indicator 250 after a certain time. For example, controller 360 could be programmed to automatically stop indicator 250 and/or band 240 after the passage of a certain amount of time, such as thirty seconds. While it may be beneficial to give the player some interaction with gaming display 204, it may also be desirable to ensure that each game round completes in a timely fashion.

[0163] Of course, certain embodiments of the present invention, such as method 800 of FIG. 13, may employ no player input. Steps 802-812 may correspond to steps 502-512 of FIG. 10. At step 814, indicator 250 is moved to a position, which may be randomly selected by controller 360. At step 816, band 240 may be moved so that indicator 250 points to an indicium conveying the game outcome. Any prizes may be awarded at step 818 before method 800 returns to step 802. Of course, steps 814 and 816 may be reversed or presented simultaneously. Also, band 240 could be randomly moved, with indicator 250 being moved to indicate the game outcome.

[0164] Another method 900 of game play that may be used with embodiments of the present invention, including that of FIG. 5, is shown in FIG. 14. Method 900 may award two types of prizes, illustrated in FIG. 5 as criminal prizes 108 or clue prizes 109. Of course, the prizes could be called or represent various things, have different values than those that will be described, and could be represented by images other than those specifically illustrated. After a game has begun, indicator 250 is moved at step 902. Band 46 is moved at step 904. A player input device is activated and the gaming device waits for player input at decision 906. If no player input is provided, method 900 cycles back to step 902. If input is provided, method 900 proceeds to step 908.

[0165] At step 908, indicator 250 is stopped. At step 910, band 46 is stopped so that indicator 250 indicates the

indiciu conveying the game outcome. Decision 912 checks to see if the indicium is a clue award or a criminal award. If the indicium is a criminal award, method 900 adds a criminal prize to the total prize at step 914. The total prize is awarded to the player at step 916.

[0166] If decision 912 determines that the indicium is a clue prize, method 900 proceeds to decision 918. Decision 918 checks to see whether the player has obtained a maximum number of clues, for example, 4. If not, method 900 proceeds to step 920 and adds a clue prize to the total prize and game play continues at step 902.

[0167] If decision 918 determines that the player has obtained the maximum number of clues, method 900 awards a jackpot prize at step 922, and game play ends.

[0168] Although embodiments of the invention described and depicted in FIGS. 7-14 have been described as a bonus game in conjunction with a primary game, the present invention is not so limited. For example, gaming display 204 (FIG. 7) could be configured as a primary game. A player could make a wager and gaming display 204 could indicate winning and losing outcomes and dispense prizes accordingly. Also, rather than being attached to a primary gaming device, gaming display 204 could be located apart from gaming apparatus 202 (FIG. 7). Gaming display 204 could also be connected to multiple gaming apparatuses 202. The present invention is not limited to a particular configuration or configurations.

MOVABLE BELT WITH GUIDE TRACKS EMBODIMENT

[0169] With reference now to FIGS. 15-19, an additional embodiment of a gaming device according to the present invention is shown. Gaming device 1500 has a gaming display device 1502. Gaming device 1500 can be a bonus game that can be mounted in a housing 1001 in conjunction with a gaming apparatus 202 as shown in FIG. 7. A front panel 1503 is mounted to housing 1001.

[0170] Gaming display device 1502 can have a belt or band 240 that is supported for rotational movement by rollers 246. Band 240 can have and outside surface 240A, an inner surface 240B, a pair of outer peripheral edges or sides 240C and 240D and a display surface 241. Band 240 can be a flexible belt that is formed in a continuous loop. Band 240 can be formed from any suitable material such as rubber or plastic. Band 240 can be partially transparent such that band 240 can be backlit by lights 330 that are mounted in a housing 328 as was previously described. Controller 360 is in communication with lights 330 and can control the operation of lights 330. Band 240 can have a display surface 241. Various indicia 244 are arranged in rows 1560 and columns 1570 on display surface 241 to form a matrix 1565. Indicia 244 can be printed on band 240.

[0171] Controller 360 can rotatably control the position of band 240 using an actuator 310 driving driven roller 320 in the same manner as previously described for FIG. 7. Controller 360 is in communication with actuator 310. The position of band 240 can be monitored by controller 360 using a sensor formed by source 362 and detector 364.

[0172] Gaming display device 1502 can include several band guide portions, guide channels or guide tracks 1520. Guide tracks 1520 can be mounted to housing 1001 and

extend along all or a portion of each edge **240C** and **240D** of band **240**. Guide tracks **1520** are used to guide and form band **240** into a variety of shapes as band **240** is moved or rotated by actuator **310**. For example, guide tracks **1520** can guide band **240** inwardly such that a concave area **1510** is formed by band **240**. Guide tracks **1520** can have a curved, arched, straight or rounded shape. Guide tracks **1520** can guide portions of band **240** into other shapes such as convex areas or areas with various degrees of sloping, flat or curved surfaces. Guide tracks **1520** can be made from various materials such as metal or plastic. The use of guide tracks **1520** can eliminate the use of the central roller **246** (FIG. 7). Guide tracks **1520** can shape band **240** into complex shapes that cannot be formed by the use of rollers alone. The use of guide tracks **1520** can also reduce wear on band **240**.

[0173] FIGS. 18 and 19 show two different cross-sectional views of guide track **1520** and band **240**. Guide track **1520** can include ends **1520A** and **1520B** and side sections **1522** and **1524** that extend from an outer end section **1526**. Inner ends **1528** and **1530** face toward band **240**. A channel or slot **1534** is located between side sections **1522** and **1524**. A spherical, circular or rounded portion **1536** may be formed in guide track **1520** and may be connected with slot **1534**.

[0174] A ball or bead **1550** is formed on sides or edges **240C** and **240D** of band **240**. Bead **1550** has a larger dimension than the width of slot **1534**. Therefore, bead **1550** fits into and is retained in circular portion **1536**. A gap **1538** is formed between bead **1550** and circular portion **1536**. As band **240** is moved by controller **360** and actuator **310**, bead **1550** slides through circular portion **1536** along the length of guide track **1520** and is moved inwardly or positioned to form a concave area or cavity **1510**. Guide tracks **1520** can be used to form or position band **240** into other shapes such as convex, sloped or flat.

[0175] While guide tracks **1520** were shown to form the shape of band **240**, a series of rollers (not shown) positioned on each side of the belt could also be used to form the shape of band **240**.

[0176] After band **240** is stopped, a game outcome **1580** (FIG. 15) can be conveyed or indicated by illuminating a portion or set of lights **330** behind band **240**. In the example shown in FIG. 15, the indicium **244** having a value of 60 credits is shown illuminated as the game outcome. Controller **360** can control and select the movement and stop position of band **240** and further can control the illumination of lights **330**.

[0177] A method of operating gaming device **1500** of FIGS. 15-19 is shown in FIG. 20. In method **2000**, a player places a wager on a primary gaming device at step **2002**. At step **2004**, the player plays a base game on the base gaming apparatus **202** (FIG. 7). At decision **2006**, method **2000** checks to see if the game outcome determined in step **2004** is an outcome qualifying the player to play a bonus game. If not, method **2000** proceeds to step **2008** and notifies the player of the game outcome determined in step **2004**, and returns to step **2002**.

[0178] If it is determined in step **2006** that the game outcome of step **2004** qualifies the player for a bonus game, method **2000** proceeds to step **2010**. At step **2010**, the bonus game outcome is determined. At step **2012**, gaming display device **1502** is activated. This may include activation of

band **240** and lights **330**. Other lights and sounds may also be activated to make the event more exciting to the player and those around the player, as well as to call attention to the device.

[0179] Method **2000** then proceeds to step **2014** where band **240** is moved or rotated. This may include using guide tracks **1520** to form band **240** into various shapes. At step **2016**, band **240** is stopped. A portion of lights **330** are illuminated behind one of the indicia **244** on band **240** at step **2018**. Method **2000** then awards any prizes to the player in step **2020**.

WATERFALL GAME EMBODIMENT

[0180] With reference now to FIGS. 18-19 and 21-23, an additional embodiment of a gaming device **2100** according to the present invention is shown. Gaming device **2100** has a gaming display device **2102**. Gaming device **2100** can be a bonus game that can be mounted in a housing **1001** in conjunction with a gaming apparatus **202** as shown in FIG. 7. A front panel **1503** is mounted to housing **1001**.

[0181] Game display device **2102** can have a prize band **240** that is supported for rotational movement by rollers **246** and guide tracks **1520**. Band **240** can have a display surface **241**. Band **240** can have and outside surface **240A**, an inner surface **240B** and a pair of outer peripheral edges or sides **240C** and **240D**. Band **240** can have a bead **1550** that is retained by guide track **1520** as was previously described in FIGS. 18 and 19. Bead **1550** can cause band **240** to slide through guide track **1520**.

[0182] Band **240** can be a flexible belt. Band **240** can be driven by controller **360** and actuator **310**. Band **240** can be backlit by lights **330** that are mounted in a housing **328** as was previously described. Various indicia **2130** can be displayed at prize positions **2125** on display surface **241**. Prize positions **2125** can simulate or appear to be rocks printed on display surface **241**.

[0183] Gaming device **2100** can have a game theme of a waterfall such as Niagara Falls. Gaming device **2100** can include various waterfall features such as a falling river or rapids **2110**, waterfall **2115** and a pool **2120**. Display surface **241** can be printed to resemble water. When band **240** is moved, the water can appear to move to an observer. A pool of water **2120** can be formed by a flat panel mounted in front of band **240**.

[0184] A falling river or rapids **2110** can be formed by the combination of several rollers **246** and several guide tracks **1520** at the top of gaming display device **2102**. Rollers **246** and guide tracks **1520** cause band **240** to move or undulate up and down as band **240** is rotated or moved. Rollers **246** guide band **240** upwardly forming a convex portion **1509** and guide tracks **1520** guide band **240** downwardly forming concave portions **1510**. Display surface **241** undulates between rollers **246** and guide tracks **1520**. The movement of band **240** over rollers **246** and through guide tracks **1520** appears to simulate the motion of a river with rapids.

[0185] A moveable mechanical indicator **2140** can be mounted to housing **1001** between pool panel **2120** and band **240**. Indicator **2140** can appear to be a boat such as a rescue boat or a fishing boat. As shown in FIG. 23, indicator **2140** may be coupled to a positioning mechanism **72** by a bracket **74**. Positioning mechanism **72** may be located within the

confines of housing **1001**. Positioning mechanism **72** may comprise a worm gear **78** that is rotatable by an actuator **80**.

[0186] In at least one embodiment, actuator **80** is attached to a first wheel **84**. Worm gear **78** may be attached to a second wheel **86**. A drive belt **82** may rotate around the first wheel **84** and second wheel **86**, thereby connecting actuator **80** and worm gear **78**. Positioning mechanism **72** may communicate with a controller **360**, which may store information regarding pre-determined positions of band **240**. Sensors **88** and **90** can be in communication with controller **360** and may be provided to allow controller **360** to detect the position of indicator **2140**. Other devices may be used to detect the position of the indicator, such as optical readers.

[0187] Lights **2145** can be mounted on indicator **2140**. Lights **2145** can be light emitting diodes and can be connected with and controlled by controller **360**.

[0188] With reference now to FIGS. **21** and **22**, a game outcome **2135** can be conveyed or indicated by moving band **240** and indicator **2140**, such that one of the prize positions **2125** are aligned above indicator **2140**. Lights **2145** can further be illuminated to draw attention to the game outcome. In the example shown in FIG. **21**, indicator **2140** indicates the indicium **2135** having a value of 20 credits as the game outcome.

[0189] Player input devices **2160** and **2165** can be mounted to housing **1001**. Player input devices **2160** and **2165** can be buttons. Player input devices **2160** and **2165** can be used by a game player to control the position of indicator **2140**. Player input device **2160** moves indicator **2140** to the left and player input device **2165** moves indicator **2140** to the right. After a player moves indicator **2140** using player input devices **2160** and **2165**, controller **360** then moves and stops band **240** to select an indicium **2130** to be awarded.

[0190] Gaming device **2100** can be operated such that a player playing gaming device **2100** appears to view water falling over waterfall **2115** and a game outcome indicated by a boat **2140**.

[0191] A method of operating gaming device **2100** of FIG. **21** is shown in FIG. **24**. In method **2400**, a player places a wager on a primary gaming device at step **2402**. At step **2404**, the player plays a base game on the base gaming apparatus **202** (FIG. **7**). At decision **2406**, method **2400** checks to see if the game outcome determined in step **2404** is an outcome qualifying the player to play a bonus game. If not, method **2400** proceeds to step **2408** and notifies the player of the game outcome determined in step **2404**, and returns to step **2402**.

[0192] If it is determined in step **2406** that the game outcome of step **2404** qualifies the player for a bonus game, method **2400** proceeds to step **2410**. At step **2410**, the bonus game outcome is determined. At step **2412**, gaming display device **2102** is activated. This may include activation of band **240** and indicator **2140**. Other lights and sounds may also be activated to make the event more exciting to the player and those around the player, as well as to call attention to the device.

[0193] Method **2400** then proceeds to step **2414**, where band **240** is moved or rotated. At step **2416**, indicator **2140** is moved. Band **240** is stopped at step **2418**. Indicator **2140** can be stopped by controller **360** at step **2420**. Method **2400**

then awards any prizes indicated by the combination of the indicator **2140** and band **240** to the player in step **2422**.

[0194] Another method of operating gaming device **2100** of FIG. **21** is shown in FIG. **25**. In method **2500**, a player places a wager on a primary gaming device at step **2402**. At step **2404**, the player plays a base game on the base gaming apparatus **202** (FIG. **7**). At decision **2406**, method **2500** checks to see if the game outcome determined in step **2404** is an outcome qualifying the player to play a bonus game. If not, method **2500** proceeds to step **2408** and notifies the player of the game outcome determined in step **2404**, and then returns to step **2402**.

[0195] If it is determined in step **2406** that the game outcome of step **2404** qualifies the player for a bonus game, method **2500** proceeds to step **2410**. At step **2410**, the bonus game outcome is determined. At step **2412**, gaming display device **2102** is activated. This may include activation of band **240** and indicator **2140**. Other lights and sounds may also be activated to make the event more exciting to the player and those around the player, as well as to call attention to the device.

[0196] Method **2500** then proceeds to step **2414**, where band **240** is moved or rotated. At step **2416**, indicator **2140** is moved. Indicator **2140** can be stopped by controller **360** at step **2502**. Band **240** is stopped at step **2504**. Method **2500** then awards any prizes indicated by the combination of the indicator **2140** and band **240** to the player in step **2422**.

VEHICLE GAME EMBODIMENT

[0197] Turning to FIGS. **26** and **27**, an additional embodiment of a gaming device **2600** according to the present invention is shown. Gaming device **2600** has a gaming display device **2602**. Gaming device **2600** can be a bonus game that can be mounted in a housing **1001** in conjunction with a gaming apparatus **202** as shown in FIG. **7**. A front panel **1503** is mounted to housing **1001**.

[0198] Gaming display device **2602** can have a prize band **240** that is supported for rotational movement by rollers **246** and guide tracks **1520**. Band **240** can have a display surface **241**. Band **240** can be a flexible belt. Band **240** can have an outside surface **240A**, an inner surface **240B** and a pair of outer peripheral edges or sides **240C** and **240D**. Band **240** can have a bead **1550** that is retained by guide track **1520** as was previously described in FIGS. **18** and **19**. Bead **1550** can cause band **240** to slide through guide track **1520**.

[0199] Band **240** can be backlit by lights **330** that are mounted in a housing **328** as was previously described. Various prize indicia **2630** can be displayed at prize positions **2625** on display surface **241**. Prize positions **2625** can simulate or appear to be trees printed on display surface **241**.

[0200] Gaming device **2600** can have a game theme of a car driving on a road or a race track. Gaming device **2600** can include various road features such as a road **2610**, hills **2612**, dips in the road **2615**, grass or field areas **2618** and road signs **2620**. Display surface **241** can be printed with the various road features.

[0201] Convex hills **2612** can be formed in road **2610** by band **240** passing over rollers **246**. Concave dips **2615** can be formed by band **240** moving through guide tracks **1520** causing band **240** to be guided downwardly. Rollers **246** and

guide tracks 1520 cause band 240 to move or undulate up and down as band 240 is rotated or moved. Rollers 246 guide band 240 upwardly forming a convex portion 1509 and guide tracks 1520 guide band 240 downwardly forming concave portions 1510. The movement of band 240 through rollers 246 and guide tracks 1520 appears to simulate the motion of a winding road with dips and hills.

[0202] A vehicle or mechanical indicator 2640 can be mounted to housing 1001 in front of display 240. Vehicle indicator 2640 can appear to be a vehicle such as a car or truck. Indicator 2640 can also be formed to simulate other vehicles such as a boat, plane, train or motorcycle. Indicator 2640 can be coupled to and moved by a positioning mechanism 72 through a bracket 74. Indicator 2640 and positioning mechanism 72 can operate the same as previously described for indicator 2140 of FIG. 23. The position of indicator 2640 can be controlled by controller 360 and actuator 80. Lights 2645 can be mounted on indicator 2640. Lights 2645 can be light emitting diodes and can be connected with and controlled by controller 360.

[0203] With continued reference to FIGS. 26 and 27, a game outcome 2635 can be indicated by moving band 240 and indicator 2640, such that one of the prize positions 2625 are aligned above indicator 2640. Lights 2645 can further be illuminated to draw attention to the game outcome. In the example shown in FIG. 26, indicator 2640 indicates the indicium 2635 having a value of 50 credits as the game outcome. The game outcome is indicated by the combination of the indicia on the display surface and the indicator. The movement of band 240 behind car 2640 can simulate the motion of a car traveling down a road.

[0204] Player input devices 2660 and 2665 can be mounted to housing 1001. Player input devices 2660 and 2665 can be buttons. Player input devices 2660 and 2665 can be used by a game player to control the position of indicator 2640. Player input device 2660 moves indicator 2640 to the left and player input device 2665 moves indicator 2640 to the right. After a player moves and stops indicator 2640 using player input devices 2660 and 2665, controller 360 then moves and stops band 240 to select an indicia 2630 to be awarded. Gaming device 2600 can be operated using the same methods that were shown in FIGS. 24 and 25 for gaming device 2100.

SNAKING BAND EMBODIMENT

[0205] FIG. 28 shows another embodiment of a gaming device in accordance with the present invention. Gaming device 2800 has a gaming display device 2802. Gaming device 2800 can be a bonus game that can be mounted in a housing 1001 in conjunction with a gaming apparatus 202 as shown in FIG. 7. A front panel 1503 is mounted to housing 1001.

[0206] Game display device 2802 can have a prize band 2810 that is significantly longer than the prize band 240 of FIGS. 7 and 8. Band 2810 is supported for rotational movement by sets of rollers 246 and 2830. Rollers 246 are in contact with inner surface 2813 and rollers 2830 are in contact with outer display surface 2812. Band 2810 can have an outer display surface 2812 and an inner surface 2813. Band 2810 can be a continuous flexible belt. Band 2810 may have portions that are at least partially transparent.

[0207] Gaming display device 2802 may be mounted in housing 1001 using brackets 2825. Brackets 2825 may be connected between idle rollers 246 and driven roller 320 and housing 1001. Several brackets may be used to attach gaming display device 2802 within housing 1001.

[0208] Band 2810 can be backlit by lights 330 that are mounted in a housing 328 as was previously described. Band 2810 can be moved or rotated by controller 360 causing actuator 310 to rotate driven roller 320. Source 362 and detector 364 can provide controller 360 with a position signal about the position of band 2810.

[0209] Gaming display device 2802 can have a band guide section 2820 that causes the band to move back and forth or to move in a snake-like manner. Band guide section 2820 may have dozens or hundreds of rollers. The band is woven or wound around rollers 2830. The use of additional rollers allows for the storage of a longer length of band 240 by winding the band around the additional rollers. Band guide section 2820 comprises rollers 246 and 2830 that band 2810 rolls over. The use of band guide band guide section 2820 within housing 1001 allows for a longer length of band 2810. Because band 2810 is longer, a larger number of indicia can be displayed on band 2810. One of the indicia on band 2810 can be indicated as a prize or game outcome. Band 2810 can be used in place of band 240 in the gaming device embodiments that were previously described. Guide tracks (not shown) could also be used with band 2810.

[0210] Rollers 246 and 2830 could also be arranged in band guide section 2820 such that the band moves vertically between rollers instead of horizontally as shown in FIG. 28.

REEL TO REEL EMBODIMENT

[0211] FIG. 29 shows another embodiment of a gaming device 2900 in accordance with the present invention. Gaming device 2900 has a gaming display device 2902. Gaming device 2900 can be a bonus game that can be mounted in a housing 1001 in conjunction with a primary gaming apparatus 202 as shown in FIG. 7. A front panel 1503 is mounted to housing 1001.

[0212] Gaming display device 2902 can have rolls or reels of a wide band or belt of flexible material 2910 that is significantly longer than prize band 240 of FIGS. 7 and 8. Wide band or belt 2910 is supported for movement between reels 2920 and 2930. Wide belt 2910 is wound on reels 2920 and 2930. Wide belt 2910 can have an end 2914 and an end 2915. End 2914 can be wound onto reel 2920 and end 2915 can be wound onto reel 2930. Wide belt 2910 can have an outer display surface 2912 and an inner surface 2913. Wide belt 2910 can have portions that are at least partially transparent. Wide belt 2910 can be backlit by lights 330 that are mounted in a housing 328 as was previously described. Wide belt 2910 can also contain a wide variety of indicia (not shown) as was previously described in conjunction with band 240.

[0213] Gaming display device 2902 may be mounted in housing 1001 using brackets 2925.

[0214] Brackets 2925 may be connected between reels 2920, 2930 and housing 1001. Several brackets may be used to attach gaming display device 2902 within housing 1001.

[0215] Reel 2920 is driven by an actuator 2928. Actuator 2928 may be any number of suitable actuators, such as

motors, including stepper motors, gear motors, and servo motors. Actuator 2928 may rotate a shaft 2927 in connection with a wheel 2926. A belt 2924 may link wheel 2926 to another wheel 2922. Wheel 2922 is connected to reel 2920. Rotation of shaft 2927 drives wheel 2926, which in turn drives wheel 2922 and reel 2920. Therefore, actuator 2928 can rotate reel 2920. The rotation of actuator 2928 can be reversed such that reel 2920 can be rotated in both directions. Optionally, an idler wheel or pulley (not shown) can be included on the opposing side of a portion of wide belt 2910 in order to take up any slack and maintain proper tension on wide belt 2910.

[0216] Another reel 2930 is driven by an actuator 2938. Actuator 2938 may be any number of suitable actuators, such as motors, including stepper motors, gear motors, and servo motors. Actuator 2938 may rotate a shaft 2937 in connection with a wheel 2936. A belt 2934 may link wheel 2936 to another wheel 2932. Wheel 2932 is connected to reel 2930. Rotation of shaft 2937 drives wheel 2936 which in turn drives wheel 2932 and reel 2930. Therefore, actuator 2938 can rotate reel 2930. The rotation of actuator 2938 can be reversed such that reel 2930 can be rotated in both directions.

[0217] Actuators 2928 and 2938 are in communication with and can be controlled by controller 360. Source 362 and detector 364 can provide controller 360 with a position signal about the position of wide belt 2910.

[0218] Controller 360 can cause actuators 2928 and 2938 to rotate in a coordinated manner such that wide belt 2910 passes over rollers 246 and can be viewed through a transparent window 2950 by a game player. Wide belt 2910 would be unwound from reel 2920 and wound on reel 2930. When the wide belt 2910 approaches the end of its length, source 362 and detector 364 provide controller 360 with a signal that the end of the wide belt 2910 is approaching. Controller 360 then reverses the rotational direction of reels 2920 and 2930 such that wide belt 2910 is unwound from reel 2930 and wound onto reel 2920. The direction of rotation of the reels would be reversed each time that the end of the length of wide belt 2910 is approaching.

[0219] The use of reels 2920 and 2930 allows for a longer length of flexible belt or band material 2910 to be stored on gaming device 2900. Because wide belt 2910 is longer, a larger number of indicia can be displayed on wide belt 2910. One of the indicia on wide belt 2910 can be indicated as a prize or game outcome. Wide belt 2910 can be used in place of band 240 in the gaming device embodiments that were previously described.

[0220] A method of operating gaming device 2900 of FIG. 29 is shown in FIG. 30. In method 3000, a player places a wager on a primary gaming apparatus at step 2402. At step 2404, the player plays a base game on the base gaming apparatus 202 (FIG. 7). At decision 2406, method 3000 checks to see if the game outcome determined in step 2404 is an outcome qualifying the player to play a bonus game. If not, method 3000 proceeds to step 2408 and notifies the player of the game outcome determined in step 2404, and returns to step 2402.

[0221] If it is determined in step 2406 that the game outcome of step 2404 qualifies the player for a bonus game, method 3000 proceeds to step 2410. At step 2410, the bonus

game outcome is determined. At step 2412, gaming display device 2902 is activated. This may include rotation of reels 2920 and 2930, movement of belt 2910, and activation of lights 330. Other lights and sounds may also be activated to make the event more exciting to the player and those around the player, as well as to call attention to the device.

[0222] Method 3000 then proceeds to step 2414, where wide belt 2910 is moved. At decision step 3002, controller 360 checks to see if wide belt 2910 is approaching one end or the end of its length. If controller 360 detects the end of wide belt 2910 is approaching, method 3000 proceeds to step 3004, where the rotational direction of reels 2920 and 2930 is reversed. If controller 360 does not detect the end of wide belt 2910 approaching, method 3000 proceeds to step 3006 where wide belt 2910 is stopped. At step 3008, a portion of back lights 330 are illuminated behind wide belt 2910 such that a game outcome is indicated. Method 3000 in step 3010 then awards any prizes that were indicated to the player in step 3008.

[0223] In another method of playing gaming device 2900, belt 2910 may be advanced in one direction during a game sequence and then rewound when gaming device 2900 is not being played.

VARIOUS BAND SHAPES EMBODIMENT

[0224] FIG. 31 shows another embodiment of a gaming device 3100 in accordance with the present invention. Gaming device 3100 has a gaming display device 3102. Gaming device 3100 can be a bonus game that can be mounted in a housing 1001 in conjunction with a primary gaming apparatus 202 as shown in FIG. 7. A front panel 1503 is mounted to housing 1001.

[0225] Gaming display device 3102 is similar to gaming display device 2602 of FIG. 27. Gaming display device 3102 has a rotatable band 240 that can be fashioned into a wide variety of shapes and sizes. Band 240 can have an outer surface 240A, inner surface 240B, a pair of side edges 240C and 240D. A Bead 1550 can be mounted to each of edges 240C and 240D.

[0226] Band 240 may be formed into sloped, concave, convex, arched and flat band shape. The various band shapes are produced using guide tracks 1520 and rollers 246. The use of guide tracks 1520 was previously described in conjunction with FIGS. 18 and 19. Indicia 244 can be disposed on band 240 as was shown in FIGS. 15 and 16.

[0227] For example in FIG. 31, a hidden U-shaped section 3110 is formed by rollers 246 and guide tracks 1520. Hidden section 3110 could be used to hide various indicia 244 (FIGS. 15 and 16) from a game player. Controller 360 may control actuator 310 such that band 240 is moved forward allowing a game player to view an indicia or may be moved backward where the indicia becomes hidden in U-shaped section 3110.

[0228] A convex section 3120 can be formed by guide tracks 1520. A concave section 3140 may be formed by guide tracks 1520. A flat section 3130 can be formed between guide tracks 1520 and roller 246. Therefore, band 240 may further be formed into a wide variety of shapes and sizes using guide tracks 1520 and rollers 246.

CONCLUSION

[0229] It can thus be realized that certain embodiments of the present invention provide a highly attractive and enter-

taining device for displaying prizes. Certain embodiments of the present invention further provide a moveable indicator to indicate a bonus prize. Thus, certain embodiments of the present invention can easily catch patrons' attention and invite patrons to play the game. Certain embodiments may further cause players to play longer because the display device enhances the anticipation, stimulation, and excitement experienced by players.

[0230] Although the description above contains many specifications, these should not be construed as limiting the scope of the invention but as merely providing illustrations of some of the presently preferred embodiments of this invention. Thus, the scope of the invention should be determined by the appended claims and their legal equivalents rather than by the examples given.

What is claimed is:

1. A gaming apparatus comprising:
 - (A) a display device having a moveable display surface, the moveable display surface comprising a plurality of indicia;
 - (B) at least one guide track retaining at least a portion of the moveable display surface, the guide track being adapted to alter a position of the moveable display surface;
 - (C) an actuator coupled with the moveable display surface such that the actuator can move the moveable display surface; and
 - (D) a controller in communication with the actuator, the controller being configured to position the display surface such that at least one of the indicia conveys a game outcome.
2. The gaming apparatus of claim 1, wherein the guide track has a slot that extends along the guide track.
3. The gaming apparatus of claim 2, wherein the moveable display surface has an edge, the edge having a bead.
4. The gaming apparatus of claim 3, wherein the bead is retained by the slot.
5. The gaming apparatus of claim 4, wherein the bead has a round shape.
6. The gaming apparatus of claim 1, wherein the guide track forms a concave area in the display surface.
7. The gaming apparatus of claim 1, wherein the guide track forms a convex area in the guide track.
8. The gaming apparatus of claim 1, wherein the moveable display surface slides through the guide track when the moveable display surface is moved.
9. A method of gaming not necessarily in the order shown, comprising:
 - (A) determining a game outcome;
 - (B) moving a display surface, the display surface having a plurality of indicia;
 - (C) guiding the display surface using a guide track to form the display surface into a shape;
 - (D) stopping the display surface; and
 - (E) indicating at least one of the indicia as the game outcome.

10. The method of claim 9, wherein the game outcome is indicated by backlighting at least one of the indicia on the display surface.

11. The method of claim 10, wherein the display surface has an outer edge, the edge being retained by the guide track.

12. A gaming apparatus comprising:

- (A) display device means for displaying a plurality of indicia, the indicia being adapted to communicate a game outcome;
- (B) actuator means for moving the display device means, the actuator means being coupled with the display device means;
- (C) guide means for positioning the display device means into at least one shape; and
- (D) controller means for controlling movement of the display device means, the controller means being in communication with the actuator means, the controller means being configured to move the display device means and to stop the display device means.

13. The gaming apparatus of claim 12, wherein the display device means further comprises a flexible belt having an inner surface, an outer surface, and a pair of edges.

14. The gaming apparatus of claim 13, wherein the guide means further comprises a guide track that has a slot, the edge being retained in the slot.

15. The gaming apparatus of claim 13, wherein the edge further comprises a rounded bead.

16. The gaming apparatus of claim 12, further comprising illumination means for illuminating at least one of the indicia.

17. A gaming apparatus comprising:

- (A) a moveable display surface;
- (B) a plurality of indicia disposed on the display surface;
- (C) at least one guide track retaining at least a portion of the moveable display surface, the guide track being adapted to alter a position of the moveable display surface;
- (D) an actuator coupled to the moveable display surface; and
- (E) a controller in communication with the actuator, the controller being configured to:
 - (a) determine a game outcome;
 - (b) move the moveable display surface; and
 - (c) stop the moveable display surface such that at least one of the indicia conveys the game outcome.

18. The gaming apparatus of claim 17, wherein the guide track has a slot that extends along the guide track.

19. The gaming apparatus of claim 18, wherein the moveable display surface has an edge, the edge having a bead.

20. The gaming apparatus of claim 19, wherein the bead is retained by the slot.

21. The gaming apparatus of claim 17, wherein the guide track is curved.