

[0177] FIGS. 6A-6B are diagrams of two 3-D virtual gaming environments used to display symbols on virtual reel strips that may be used in a game outcome presentation for a game of chance or a bonus game. In one embodiment of the present invention, a virtual reel strip may be mapped to a plurality of 3-D objects in a 3-D gaming environment that move in a prescribed pattern of motion. For example, in FIG. 6A, a plurality of rectangular objects move in a cyclical manner out of tunnel 581 and into tunnel 582 along conveyor belts 583 in a clockwise manner in the gaming environment 580. The rectangular boxes and conveyor belts may be set in a mine or a factory. The rectangular boxes include symbols from segments 344-352 of virtual reel strip 339 in FIG. 3A. As the rectangular boxes move in and out of the tunnels, a sequence of symbols defined by the virtual reel strip 339 may be mapped to the rectangular boxes such that the symbols on the virtual reel strip are sequentially displayed.

[0178] The conveyor belts may start from a resting position, speed up, move at a constant speed and slow down to a final position. When the conveyor belts are at rest, the initial sequence of symbols displayed on the rectangular boxes may correspond to a first sequence of symbols from the virtual reel strip. Using a paytable corresponding to the reel strip, a final position on the virtual reel strip may be selected that allows a second sequence of symbols displayed on the rectangular to be generated. Next, the conveyor belts may rotate and symbols may be mapped to the rectangular boxes until the second sequence of symbols is generated on the plurality of boxes. The conveyor belts may rotate fast enough so that the symbols are not readable on the rectangular boxes allowing for jumps in the sequence of symbols defining the virtual reel strip.

[0179] As with the reel models described with respect to FIGS. 3A-3F and 4, variable rates of motion and directions of motions may be specified for the conveyor belts 583. Further, the gaming machine may be capable of receiving inputs from a player that allows the conveyor belts to start spinning and stop spinning. One or more positions where the conveyor belts are located may be used to indicate awards. For instance, an award may be indicated by the symbol on the rectangular box that stops at the position of box 348. The 3-D objects in the 3-D gaming environment 580 may be rendered to a display screen of the gaming machine as part of a game outcome presentation for a game of chance or a bonus game.

[0180] In FIG. 6B, another embodiment of the present invention is described where a sequence of symbols defined by three virtual reel strips are mapped to a plurality of moving objects in a virtual gaming environment 450. In FIG. 6B, three streams of symbols flow from floodgates of a dam. The dam, the symbols, the water and scenery may be modeled as 3-D objects in the 3-D gaming environment 450 and may be rendered to a display screen of the gaming machine as part of game outcome presentation for a game of chance or a bonus game. Each stream carries symbols mapped from a separate virtual reel strip. The first stream displays symbols corresponding to segments 343-348 of a first virtual reel strip 339, the second stream displays symbols corresponding to segments 451-456 from a second virtual reel strip and the third stream displays symbols corresponding to segments 551-556 from a third virtual reel strip.

[0181] A payline 460 defines a combination of symbols from the three streams. Multiple paylines are possible with the present invention and it is not limited to a single payline. Using a paytable, a final combination of symbols displayed at the payline 460 may be determined.

[0182] When the game is initiated, the floodgates may be closed and no water may be flowing. The symbols may rest on ledges on the dam and on the ground below the dam. When the game is initiated, the flow gates may open and water-carrying symbols down the dam and into the water below dam may begin to flow. The water may flow faster or slower and at different rates analogous to the reels spinning faster or slower as described with respect to FIG. 4. As the symbols representing the final combination approach the payline, the floodgates may close cutting off the water and the final combination of symbols, as determined from the paytable for the game, may come to rest on the payline 460. Then, an award for the final combination may be indicated.

[0183] The present invention is not limited to the two scenarios described above for mapping symbols to a sequence of objects generated in a 3-D gaming environment. Many different types of 3-D objects may be used for the sequence of objects. Further, many different types of themes, other than the mine, factory or dam as described in FIGS. 6A and 6B, may be used as backgrounds for a sequence of objects used to display a sequence of symbols from a virtual reel strip and the present invention is not limited to the examples described in the figures.

[0184] In FIG. 6C, the display of virtual reel strips in a 3-D gaming environment 700 is further generalized. This example is provided for illustrative purposes only and the present invention is not so limited. In the figure, objects with symbols from three virtual reel strips are shown originating from three object sources 705, 710 and 715. The symbols may be drawn on the front face of a 3-D rectangle so that they are visible to a user when rendered to the display screen, although, any general 3-D shape in which the symbols are visible when rendered may be used as objects including essentially 2-D objects with a minimal thickness.

[0185] The solid lines with arrows illustrate the trajectories of the objects in the 3-D gaming environment 700. In general, an object's trajectory may be any 3-D curve through the 3-D gaming environment 700. Further details of generating object trajectories in a 3-D environment including collisions is described in co-pending U.S. application Ser. No. 10/187,343, filed on Jun. 27, 2002, by Brosnan et al. and titled, "Trajectory Based 3-D Games of Chance for Video Gaming Machines," which is incorporated herein in its entirety and for all purposes.

[0186] The rectangular boxes with the symbols move through the space of 3-D gaming environment 700. When the boxes pass near or through the circle 706, some are captured and land at 9 designated spots on a plane including the circle 706. Boxes with symbols, 455, 453, 344, 346, 553 and 554 occupy six of the designated spots. Three of the designated spots, 701, 702 and 703 are unoccupied.

[0187] Objects may emerge from the object sources, at various time intervals. The order of symbols drawn on the 3-D objects as they emerge from each of the object sources, 705, 710 and 715, may be determined from a virtual reel strip as previously described with respect to FIGS. 3A-3G.