

[0053] FIG. 8 describes a method of displaying on a secondary display of a gaming terminal a mechanical device that has been 3D-rendered in real time as opposed to being pre-rendered. A wagering game is initiated on a gaming terminal (200) under the control of a processor running game software that resides on the gaming terminal or on a remote server or host computer. The wagering game is displayed on a primary display of the gaming terminal (202), and a game outcome is determined for the wagering game (204). The game outcome may be determined by a processor residing in the gaming terminal or by a remote server or host computer. An image representing a 3D-rendered mechanical device is rendered in real time (206) either by a 3D-graphics processor or the like that resides in the gaming terminal or in a remote server or host computer communicatively linked with the gaming terminal. The mechanical device image being rendered in real time is associated with the game outcome (208) and is displayed on a secondary display in the top box area of the gaming terminal (210). As described above, in other embodiments, the real-time mechanical device image depicts a bonus from a bonus game displayed on the secondary display.

[0054] Conventional gaming machines employing physical mechanical devices in the top box area lack the flexibility afforded by the present invention because the mechanical devices cannot be easily replaced with another mechanical device. If a player becomes bored with the game or otherwise tires of playing the game, the player must leave the gaming machine and seek out another game. The apparatus and method of the present invention increases the overall excitement and interest level of the player by any combination of the following: presenting to the player a selection of choices of bonus games, each with its own 3D-rendered image or animation of a mechanical device, displaying on the secondary display of the gaming terminal a 3D-rendered mechanical device that closely resembles its physical counterpart and yet may behave in ways that its physical counterpart cannot, and encouraging the player to play additional bonus games if for no other reason than to satisfy a curiosity as to what the 3D-rendered image or animation for a particular bonus game looks like. The realistic-looking images on the secondary display in the top box area adds a “wow” factor to the game, increasing its attractiveness to the player and heightening the player’s sense of intrigue and curiosity. The “illusion” may be further cemented through the use of sculptured frames or other structures that add depth or dimensionality to the 3D-rendered mechanical device(s) being displayed on the secondary display. Realistic sounds of gears turning, reels rotating, die rolling, or the like may be played through the speakers of the gaming terminal to further create the impression that the player is observing physical hardware in action.

[0055] The present invention also provides numerous advantages to the casino operator. First, it saves floor space by providing multiple bonus games on a single machine. Traditionally, two different bonus games employing a mechanical device had to be incorporated into separate gaming machines. It also allows new top box images to be readily loaded into the gaming terminals. If interest wanes in a particular game, for example, rather than replacing the gaming terminals built to play the particular game, the top box images can be replaced with new ones according to the present invention.

[0056] An important aspect to all embodiments of the present invention is the display in the top box area of a gaming terminal a 3D-rendered mechanical device. Traditionally, mechanical devices in the top box area of gaming machines have been just that—mechanical. As contrasted with simple non-mechanical objects such as balloons, fruit, and the like and human-like or animal characters, mechanical devices are more complex in that they involve the interaction of several parts that obey various mechanical rules and laws of physics. As mentioned above, examples of mechanical devices include rotating wheels, flipping tiles, mechanical die, and mechanical reels. These devices include various mechanical parts that mutually cooperate in 3D-space to impart motion. Because the movement of the device obeys rules and laws, mechanical devices are well-suited for presenting a primary or bonus outcome. Although a computer calculates the outcome using a random-number generator, a sense of randomness is visually conveyed by using a mechanical device because its behavior must follow conventional rules and laws, and therefore one can be confident in the randomness of the outcome. Any sense by the player that the outcome has been influenced by outside forces will foment skepticism and loss of interest in the game.

[0057] Thus, traditionally, the mechanical devices have been implemented in physical hardware, which creates the impression to the player that the mechanical device is randomly presenting the outcome (even though it is actually calculated by a processor). For this reason, replacing the physical hardware with simulated hardware is no trivial matter. The player must still be assured through the visual presentation of the game outcome or bonus game that the outcome is truly randomly generated. The present invention maintains this assurance by preserving the realism of traditional mechanical hardware while taking advantage of the increased flexibility offered by software, such as allowing the player to select multiple bonus games or other top-box features without leaving the gaming terminal or utilizing special effects to enhance the visual appearance.

[0058] Another important aspect to the present invention is the ability to modify existing images or present new images to the player without having to take the gaming terminal 10 offline or otherwise remove it from service for an extended period of time. In various embodiments, the new or replacement images may be pre-rendered and downloaded to the gaming terminal 10 (in an encoded digital video format or as analog video, for example) or may be stored on a remote server 50 or host computer for transmission to the gaming terminal 10. This aspect provides maximum flexibility in controlling how the top box area is presented to the player and what is presented in the top box area.

[0059] While the present invention has been described with reference to one or more particular embodiments, those skilled in the art will recognize that many changes may be made thereto without departing from the spirit and scope of the present invention. Each of these embodiments and obvious variations thereof is contemplated as falling within the spirit and scope of the claimed invention, which is set forth in the following claims.