GAMING MACHINE WITH SUPERIMPOSED DISPLAY IMAGE

FIELD OF THE INVENTION

[0001] The present invention relates generally to reel spinning slot machines and, more particularly, to a reel spinning slot machine with a video image superimposed upon the mechanical reels of the machine.

BACKGROUND OF THE INVENTION

[0002] A reel spinning slot machine generally comprises a plurality of mechanical rotatable reels controlled by a processor. In response to a wager, the processor randomly selects an outcome from a plurality of possible outcomes and then causes the reels to be rotated and stopped to display the selected outcome. The selected outcome is represented by certain symbols on the reels being in visual association with a display area. If the selected outcome corresponds to a winning outcome identified on a pay table, the processor instructs a payoff mechanism to award a payoff for that winning outcome to the player in the form of coins or credits.

[0003] Heretofore, the display area of reel spinning slot machines has been fairly mundane. Any proposals for changing the appearance of the display area have been fairly minor and limited in capability. For example, in U.S. Pat. No. 6,056,642 to Bennett, reel symbols are colored by backlighting the symbols with colored light bulbs or similar means. In U.S. Pat. No. 6,027,115 to Griswold et al., the reels themselves contain electroluminescent elements that define one or more reel symbols, such as cherries, bars, a number "7," etc. If multiple electroluminescent elements are provided for a particular symbol, that symbol may be displayed in multiple formats. Although the above proposals change the appearance of the display area to some extent, a need exists for a spinning reel slot machine with a structure capable of effecting more extravagant changes to the appearance of the display area.

SUMMARY OF THE INVENTION

[0004] Accordingly, a spinning reel slot machine comprises a plurality of mechanical rotatable reels and a video display. In response to a wager, the reels are rotated and stopped to randomly place symbols on the reels in visual association with a display area. The video display provides a video image superimposed on the reels. The video image may be interactive with the reels and include such graphics as payout values, a pay table, pay lines, bonus game features, special effects, thematic scenery, and instructional information. The present invention is advantageous in that it is capable of effecting extravagant changes to the appearance of the display area and displaying the graphics within the player's focus (i.e., the mechanical reels).

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] The foregoing and other advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings.

[0006] **FIG. 1** is an isometric view of a spinning reel slot machine embodying the present invention.

[0007] **FIG. 2***a* is a side view of the slot machine with portions broken away to reveal internal structure in accordance with a first embodiment of the present invention.

[0008] **FIG. 2***b* is a side view of the slot machine with portions broken away to reveal internal structure in accordance with a second embodiment of the present invention.

[0009] **FIGS. 3 through 10***a-c* are front views of a display area of the slot machine with various video images superimposed on the mechanical reels.

[0010] **FIG. 11** is a block diagram of a control system suitable for operating the slot machine.

[0011] While the invention is susceptible to various modifications and alternative forms, specific embodiments have been shown by way of example in the drawings and will be described in detail herein. It should be understood, however, that the invention is not intended to be limited to the particular forms disclosed. Rather, the invention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

[0012] Turning now to the drawings and referring initially to **FIG. 1, a** spinning reel slot machine **10** comprises a plurality of mechanical rotatable reels **12***a*, **12***b*, **12***c* and a video display (see **FIGS. 2***a* and **2***b*). In response to a wager, the reels **12***a*, **12***b*, **12***c* are rotated and stopped to randomly place symbols on the reels in visual association with a display area **16**. Payouts are awarded based on combinations and arrangements of the symbols appearing in the display area **16**. The video display provides a video image **18** occupying the display area **16** and superimposed on the reels **12***a*, **12***b*, **12***c*. The video image **18** may be interactive with the reels **12***a*, **12***b*, **12***c*, may be static or dynamic, and may include such graphics as payout values, a pay table, pay lines, bonus game features, special effects, thematic scenery, and instructional information. In the illustrated embodiment, the slot machine **10** is an "upright" version in which the display area **16** is oriented vertically relative to the player. Alternatively, the slot machine **10** may be a "slant-top" version in which the display area **16** is slanted at about a thirty degree angle toward the player of the slot machine **10**.

[0013] Referring to **FIGS. 2***a* and **2***b*, the video image **18** in the display area **16** may be either a direct image (**FIG. 2***a*) or a virtual image (**FIG. 2***b*). If the video image **18** is a direct image, as in **FIG. 2***a*, the direct image is preferably generated by a flat panel transmissive video display **14***a* positioned in front of the reels **12***a*, **12***b*, **12***c*. The transmissive display **14***a* may, for example, be a transmissive liquid crystal display (LCD) commercially available from LG Phillips LCD Co., Ltd., of Seoul, Korea. The transmissive display **14***a* may be outfitted with a touch screen mounted to a front surface of the display **14***a*. The touch screen contains soft touch keys denoted by the image on the underlying display **14***a* and used to operate the slot machine **10**.

[0014] If the video image **18** is a virtual image, as in **FIG. 2***b*, the virtual image is preferably generated by a projection arrangement. including a video display **14***b* and a partially reflective mirror **20**. The video display **14***b* and the partially reflective mirror **20** are relatively positioned to project the