

**PORTABLE WAGERING GAME WITH
VIBRATIONAL CUES AND FEEDBACK
MECHANISM**

**CROSS-REFERENCE TO RELATED
APPLICATION**

[0001] This application is related to co-pending U.S. Provisional Patent Application Ser. No. 60/715,237, entitled "Gaming Machine Having Display With Sensory Feedback," filed on Sep. 8, 2005.

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FIELD OF THE INVENTION

[0003] The present invention relates generally to gaming machines, and methods for playing wagering games, and more particularly, to a portable wagering gaming machine having one or more vibrating devices that provide vibrational cues or feedback to indicate a wagering-game event.

BACKGROUND OF THE INVENTION

[0004] Gaming machines, such as slot machines, video poker machines and the like, have been a cornerstone of the gaming industry for several years. Generally, the popularity of such machines with players is dependent on the likelihood (or perceived likelihood) of winning money at the machine and the intrinsic entertainment value of the machine relative to other available gaming options. Where the available gaming options include a number of competing machines and the expectation of winning at each machine is roughly the same (or believed to be the same), players are likely to be attracted to the most entertaining and exciting machines. Shrewd operators consequently strive to employ the most entertaining and exciting machines, features, and enhancements available because such machines attract frequent play and hence increase profitability to the operator. Therefore, there is a continuing need for gaming machine manufacturers to continuously develop new games and improved gaming enhancements that will attract frequent play through enhanced entertainment value to the player.

[0005] One concept that has been successfully employed to enhance the entertainment value of a game is the concept of a "secondary" or "bonus" game that may be played in conjunction with a "basic" game. The bonus game may comprise any type of game, either similar to or completely different from the basic game, which is entered upon the occurrence of a selected event or outcome in the basic game. Generally, bonus games provide a greater expectation of winning than the basic game and may also be accompanied with more attractive or unusual video displays and/or audio. Bonus games may additionally award players with "progressive jackpot" awards that are funded, at least in part, by a percentage of coin-in from the gaming machine or a plurality of participating gaming machines. Because the bonus game concept offers tremendous advantages in player appeal and excitement relative to other known games, and because such games are attractive to both players and operators, there is a continuing need to

develop gaming machines with new types of bonus games to satisfy the demands of players and operators.

[0006] Gaming machines have also utilized a variety of output devices for producing an audio or visual experience to the player. However, these output devices only engage the senses of hearing or sight. In portable, handheld gaming machines that are held by the player's hands or rested on a player's lap, some part of the player's body maintains contact with the handheld gaming device, opening up the possibility that the player's sense of touch can be engaged in addition to hearing and sight. Just as the cooperation of a player's left and right ears can be used to pinpoint the direction and distance of a sound transmission, so too can a player's sense of touch be used to create the perception that feedback is emanating from a specific point relative to the handheld gaming machine. This sense of touch has not been exploited heretofore on a handheld gaming machine.

[0007] Thus, a need exists for an improved apparatus and method. The present invention is directed to satisfying one or more of these needs and solving other problems.

SUMMARY OF THE INVENTION

[0008] According to one aspect of the present invention, a handheld gaming machine includes an input device for receiving a wager to initiate a wagering game, a video display for displaying the wagering game on the handheld gaming machine, at least one actuator, and a controller coupled to the video display and to the actuator. The controller is programmed to cause the wagering game to be displayed on the video display and to cause the actuator to produce a vibration that indicates the occurrence of a wagering-game event. The wagering-game event includes a change in game rules, such as a change in the odds of winning an award during the wagering game, a change in the type of award that can be awarded during the wagering game, or the receipt of a wager by the input device on the handheld gaming machine. The vibration can be consistent with a theme of the wagering game, such as a slot wagering game and the vibration is a series of vibrations that simulate the tactile sensation of multiple reels decelerating and coming to a stop, a roulette wagering game and the vibration is a series of vibrations that simulate the tactile sensation of a spinning roulette wheel, a card wagering game and the vibration simulates the tactile sensation of a card being placed upon a surface.

[0009] The vibration indicating a change in game rules can be produced independent of changes between normal game play and bonus round game play of the wagering game. The change in game rules include eligibility for bonus play, or eligibility to accumulate one or more game elements associated with the wagering game.

[0010] In some aspects, the at least one actuator includes a haptic touch screen, and in other aspects, the at least one actuator includes an electromagnetic coil coupled to a movable mass. In other aspects, the handheld gaming machine includes at least two actuators, which are optionally rotatable about an axis in three-dimensional space. The actuator(s) may be coupled to the housing of the handheld gaming machine to transmit vibrations to the player via the housing. In still other aspects, the handheld gaming machine includes three actuators, each one positioned along an axis that is different from those of the other two actuators. In still further aspects, the handheld gaming machine includes four actuators.

[0011] In some aspects, the controller is further programmed to generate sounds through one or more speakers on