display device **112** can be located outside the reel **102** (i.e., outside the cylindrical volume defined by the reel) and the optical fibers can extend into the reel **102** so as to produce the image in the transparent window. Also, the display device **112** and optical fibers **114** can serve to provide images and backlighting for several reels **102**.

[**0044**] **FIG. 7** illustrates a mechanical reel system **130** having a reel **132** with a display region **134** that includes a first symbol region **136**, a second symbol region **138**, and a third symbol region **140**. The display device **150** is positioned in the middle of the display region **134** to provide images to a transparent window in the reel **132** or backlighting for typical reel symbols. A lens **152** is located in front of the display device **150** to provide curvature to the video symbol and cause it to more resemble the symbol on the reel **152**. While the lens **152** is shown as being used with a display device **150**, the lens **152** may also be placed on the ends of a fiber optic bundle, such as the one shown in **FIG. 6**. Also, it should be noted that any of the video displays previously described could have a curved surface mimicking the curvature of the mechanical reel.

[**0045**] **FIG. 8** illustrates three mechanical reels **154**, **156**, **158** having symbols on their exterior surfaces and at least one transparent window. The dashed lines represent the display regions of the reels **154**, **156**, **158**. The display region of the left reel **154** includes a "7" symbol at symbol position **162***a*, a "cherry" symbol at symbol position **162***b*, and an "orange" symbol at symbol position **162***c*. The display region of the middle reel **156** includes a "7" symbol at symbol position **164***a*, a transparent window **164***b* with the video display showing a "triple bar" video symbol through the window **164***b*, and a "bell" symbol at symbol position **164***c*. The display region of the right reel **158** includes a transparent window **166***a* with the video display showing a "cherry" video symbol through the window **166***a*, a "7" symbol at symbol location **166***b*, and a "bell" symbol at symbol location **166***c*.

[**0046**] By providing the transparent windows on each of the reels **154**, **156**, **158**, the slot machine is provided with more flexibility in altering the theoretical payout table of the machine. For example, if it were desired to increase the percentage of winning combinations, albeit with the amount of the winnings being reduced, the transparent windows could be programmed to display the video symbols that are the same as winning symbols already present on the reel. Thus, if the combination of "7" symbols produces a winning outcome for which the likelihood of achieving such an outcome is to be increased, then the transparent windows can be used to "add" three additional "7" symbols to the reels.

[**0047**] This concept of altering the theoretical payout table is described graphically in **FIGS. 9A and 9B**, which illustrate a hypothetical mechanical reel having one transparent window and the virtual reel that it produces. **FIG. 9A** depicts one to four symbol locations, with one symbol location being a transparent window. As shown in **FIG. 9**B, the transparent window can display symbol "D" in the first rotation and symbol "E" in the second rotation, and so on. The odds of achieving symbols "A,""B" or "C" in two rotations would be 1 in 4. Yet, the odds of achieving symbol "D" or "E" in those two rotations is 1 in 8. Alternatively, if one desired to increase the odds of achieving symbol "A," the video screen could produce an "A" video symbol that is seen through the transparent window. In this situation, the odds of achieving an "A" symbol in two rotations is 4 in 8 (i.e., 1 in 2) because two "A" symbols are possible in each rotation.

[**0048**] In the embodiments of FIGS. **4-8**, the video display may create additional animation when a certain event occurs. For example, the video display may display animation when a win occurs. Or, the video display may provide some type of bonus game. If such animation is desired, after the win, the machine may need to move the transparent window to the display region so that the animation is visible to the player.

[**0049**] **FIG. 10***a* illustrates yet another alternative in which the system **180** includes a reel having a plurality of video displays **182** at each symbol location. Each video display **182** is capable of displaying various video symbols, which provides the system **180** with the flexibility of a true video slot machine, while preserving the movement of mechanical reels that numerous slot machine players find desirable. The signal for producing the video symbols is transmitted to each video display **182** by a wire **184**. A primary power cable **186** feeds the signals into the reel where the signals are distributed to the wires **184** (see **FIG. 10***b*). The video displays **182** can be a liquid crystal display (LCD), dot matrix, vacuum fluorescence display, organic liquid crystal display (OLCD), LED array, Electronic paper, or any other display device capable of producing images.

[**0050**] To control the inputs to the video displays **182**, circuitry using a transformer may be used as is shown in **FIG. 10***b*. Power is supplied by a source **190** along the primary power cable **186**. A transformer **192** includes a stator **192***a* and a rotor **192***b*. A bridge **194** is provided at the output of the transformer **192** for converting the alternating current into a direct current. A microcontroller **196** receives the inputs from the bridge **194**.

[**0051**] In addition to the power source **190**, the transformer **192** also receives data signals from a data source **191**. These data signals are encoded signals on the alternating current and are received by the microcontroller **196** by a data line **197**. The data signals provide the instructions for which video symbols are to be displayed by the video displays **182**. The data source **191** would typically be the primary microprocessor for the gaming machine, which sends the signals to the reel corresponding to the random outcome it has selected in response to receiving a wager input. The microcontroller **196** then provides the signals to each of their video displays **182** over the corresponding wire **184** to display this outcome.

[**0052**] Preferably, there is one transformer **192** per reel. The stator **192***a*, including the primary winding and the core, is mounted in a fixed position along the axis of rotation of the reel. The rotor **192**, comprised of the secondary winding, is mounted to the rotating portion of the reel **180** and rotates around the core of the stator **192***a*. The bridge **194** and the microcontroller **196**, which is mounted on a circuit board, rotates with the reel. The microcontroller **196** includes either internal or external memory. The circuit board may also include other peripheral and lamp controllers.

[**0053**] **FIG. 11** illustrates a reel system **200** having a display region **202** for viewing the symbols that determine