

story are being played together, or maintaining the audio and pictorial scenes in relative sync during non-use in order to avoid long synchronization waiting periods.

With respect to the mechanism of the AV cassette **110** providing the pictorial scenes, the picture scroll **114** is a long strip of material, preferably paper or any substantially non-translucent material, having a number of different pictorial scenes **116** printed thereon. It is contemplated, however, that the material may be translucent (e.g., acetate), provided a backlight is appropriately implemented within the base unit described below. Collectively, these pictorial scenes **116** portray a historical event, a widely known fictional story (e.g., a popular animated story created and produced by Walt Disney Company of Burbank, Calif.) or the like. Each end of the picture scroll **114** is coupled to a respective one of the rollers **112** and **113** which are supported for rotation on generally opposite sides **111b** and **111c** of the casing **111**, respectively. As a result, at least one of the pictorial scenes may be positioned in face to face disposition with respect to the viewing window **115** and top surface **111a** of the AV cassette **110**.

With respect to the mechanism of the AV cassette **110** providing audio, a conventional audio cassette tape **117**, pre-recorded with audio information complementary to the pictorial information on scroll **114**, is flexibly mounted on a bottom surface **111d** of the casing **111**. This flexible mounting allows easy insertion and removal of the audio cassette tape **117** from the base unit **120**.

Typically, a conventional audio cassette tape will have four parallel tracks or channels, two recorded to provide stereo playback when played in one direction, and the other two recorded to provide an independent stereo playback when played in the opposite direction by turning the cassette over and playing the tape again as it is rewound to its original condition. Proper placement of the two channel record and playback head with respect to the tape provides proper head alignment with respect to each pair of the four tracks on the tape without readjustment of head position.

In the present invention, the audio cassette tape **117** also features a plurality of parallel tracks (i.e., channels). However, for example, the audio cassette tape **117** may be configured to include four parallel channels, with cooperatively disposed read heads in the base unit **120** to read all four channels at once during the forward motion of the tape, and play back one of the four channels through speaker **140** (FIG. 3). A primary individual channel or track may be selected as a default at the beginning of the featured story, or during operation. The selected channel provides a particular story line of the featured story. The presence of multiple channels allows the AV cassette **110** to contain and provide many different story lines of the same featured story. These different story lines may have slightly-different plots, or may involve a narration from different perspectives (e.g., from different characters of the featured story). It is contemplated that such channel selection may be performed through coding by frequency modulation or other well-known techniques preferably directly detectable by a micro-controller or processor of the interactive audio-visual toy.

These channels may be arranged in a number of configurations. For example, one type of configuration is that a first channel is used to control the beginning and ending of a narrative audio segment associated with a particular pictorial scene and signals indexing of the picture scroll while the other channels contain recorded audio information. Other types of completed configurations may include adapting all of the channels to (i) include audio information with buried

control signals producing a tone pulse within an inaudible range (i.e., out of the bandpass range of audible sound) to signal a controller to advance the picture scroll **114** to the next pictorial scene, or (ii) include control and audio information appropriately recorded at specific locations on its channel. Particularly in the later configuration, a single adjustable read head could alternatively be used, with the channel being played at any one time by selectably positioning of the head across the tape.

As shown, the audio cassette tape **117** is controlled by an audio cassette drive mechanism **130** in the base unit **120** deployed as a bottom surface of an AV cassette slot **123**. The audio cassette drive mechanism **130** features two drive pins **131** and **132** to rotate the take-up reels (not shown) of the audio cassette tape **117** to play or rewind the tape **117**.

As further shown in FIG. 1, the base unit **120** comprises a stand portion **121** and a planar portion **122** which is coupled to the stand portion **121** and set at an acute angle from a surface (floor, lap, etc.) upon which the stand portion **121** is situated. The planar portion **122** includes (i) the AV cassette slot **123**, (ii) a widely-used cassette loading device **124** pivotably coupled to a first side **123a** of the AV cassette slot **123** and configured to receive and properly load the AV cassette **110** into the AV cassette slot **123** and (iii) an interactive control panel **125** having a plurality of interactive control buttons **125a–125d** being arbitrary in number.

The plurality of interactive control buttons **125a–125d** may be made of a non-translucent material (e.g., plastic) having indicia printed thereon, or made of translucent or transparent material (e.g., clear plastic) allowing certain indicia printed on the picture scroll to be visible therethrough. Thus, audio does not have to identify all of the selections, but rather allows the user to make a selection based on the indicia presented to him or her.

When the control buttons **125a–125d** are depressed, they indicate the interactive responses by the user. For example, upon depressing one of the interactive control buttons (e.g., a first interactive control button **125a**), it signals the audio cassette drive mechanism **130** of the base unit **120** to play a particular channel of the audio cassette tape **117**, which may slightly alter the narrative story.

In addition, protruding from the first side **123a** of the AV cassette slot **123** are a pair of scroll drive pins **126a** and **126b** spaced apart so that the scroll drive pins **126a** and **126b** in an AV cassette **110** are aligned with and rotationally coupled to the rollers **112** and **113** after the AV cassette **110** is loaded into the AV cassette slot **123**. These scroll drive pins **126a** and **126b** engage the rollers **112** and **113** in an AV cassette **110** as the cassette is slid into the cassette carrier **124** prior to the cassette carrier being rotated downward to the cassette loaded position, such as is shown in FIG. 2. The scroll drive pins **126a** and **126b** are motor driven to appropriately rotate the rollers **112** and **113** in a clockwise or counter-clockwise direction to index or rewind the picture scroll **114**.

Referring now to FIG. 2, the face and lower edge of the interactive audio-visual toy **100** of FIG. 1 may be seen. The AV cassette **110** has been inserted into the AV cassette carrier on the base unit **120** and then rotated downward to lie generally flush with a top surface **122a** of the planar portion **122**. The base unit **120** further includes a cassette control panel **127** having a plurality of cassette control buttons **127a–127d** that control the operations of the AV cassette **110**. These four cassette control buttons **127a–127d** operate as “Eject”, “Stop”, “Play” and “Rewind”, respectively. It is contemplated that additional cassette control buttons may be implemented to provide additional control features or a