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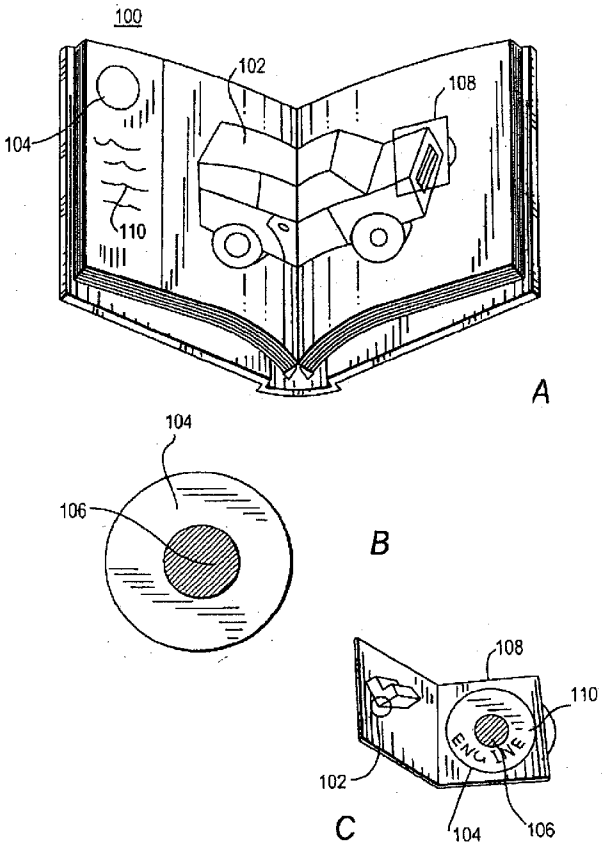
(54) Title: SYSTEMS AND APPARATUS FOR EXPRESSING MULTIMEDIA PRESENTATIONS CORRESPONDING TO PRINT MEDIA



(57) Abstract: The present invention provides an educational or entertainment system capable of activating audio, web-based streaming or flash video presentations from designated portions of a printed surface containing visual images, comprising a surface containing a plurality of discrete, visually colored zones which code for particular presentations, each of said colored zones being overlaid by or surrounded by a zone of invisible fluorescent substance which can be detected by the use of light outside the visible spectrum and means for detecting the same. The system further includes a portable reader comprising: (i) a sensor pipe, (ii) a means for directing a first beam of light within the visible spectrum, located within the sensor pipe and a means for directing a second beam of light, also within the visible spectrum, located within the sensor pipe, (iii) a detector for detecting light emanating from said invisible fluoprescent substance when light outside the visible spectrum impinges upon it and for detecting light reflected from the visually colored zones, (iv) a means activated by the detector when light emanating from said invisible substance is detected which causes the reader to emit said second beam of light, and (v) means for playing audio, web-based or flash video presentations coded by the visually colored zones when light of a particular wavelength within the visible spectrum is reflected from a visually colored zone and detected.

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SYSTEMS AND APPARATUS FOR EXPRESSING MULTIMEDIA PRESENTATIONS CORRESPONDING TO PRINT MEDIA

This application claims the benefit of U.S. Provisional Application No. 60/839,331, filed August 22, 2006, and U.S. Provisional Application No. 60/897,278, filed January 25, 2007.

FIELD OF THE INVENTION:

The invention relates generally to a method for supplementing the information available in a print medium by providing access to multi-media. More particularly, the invention relates to a system which uses color coded zones in a printed surface to provide a portal to sound, video, web-based or other media. Even more particularly, the invention relates to the use of a system employing both invisible and visible printed inks and specific wavelengths of light to activate sound signals, video, and/or web-based media.

BACKGROUND OF THE INVENTION:

Most printed surfaces are silent and static, i.e., they do not emit sounds or display visual information relating to the objects depicted on the surface. Examples of such surfaces include the pages of books, magazines, newspapers, board games and displays.

Audiotapes, compact discs and other media can provide an audible version of the content of books. Computer systems and programs are known to provide that content on a display. Some computer programs highlight words as they are read as well as provide an audio version of the content being highlighted. Other computer systems and programs allow a user to click on a word or image to provide additional audio and visual information relating to the content. These conventional systems, however, are not part of the actual print medium and they lack the look and feel of the print medium.

Conventional systems also exist that use a scanner or stylus to scan a printed surface imprinted with a conventional two dimensional (i.e. bar code) proprietary pattern or applied medallion. These systems, however, are not ideal for printed surfaces because they involve distracting or unattractive extraneous indicia imprinted in the printed surface.

Systems that employ optical readers or other types of detectors to detect images, symbols, and barcodes in printed materials are disclosed in U.S. Patent No. 6,722,569. The '569 patent discloses an optical reader that determines whether a captured image on printed material is a color or photographic image or a symbol.

U.S. Patent No. 6,375,075 discloses a symbol image sensor that includes one or more filters which remove or reduce certain wavelengths of light reflected from the symbol to create color separations at the image sensor. In the '075 patent, a comparator, such as a microprocessor, programmed general purpose computer, or digital logic circuit can determine the position and color of the various elements of the symbol based on the decoded image data produced by the sensor.

Systems have also been developed in which sound data have been encoded into a printed surface and can be extracted using readers that decode the encoded information. It is sometimes desirable to encode data, including sound data, onto a reflective print having an image, symbol or barcode. The sound data, which may be optically readable, provides information relating to the image. The sound data may be encoded onto the print so that it overlays the image, or alternatively, is encoded in a margin surrounding the image on the print. A reader is typically provided which reads the encoded data and emits sound corresponding to that data. U.S. Patent No. 5,502,304 discloses systems wherein sound data is imprinted in the form of a machine readable code, such as a barcode, onto a still form reflection print, or, invisible ink is used to form a scanable barcode encoding sound information.

U.S. Patent No. 6,561,429 discloses an adjustable reader and a method of reading encoded indicia on an object. The reader includes a detector for detecting the indicia and an emitter coupled to the detector for emitting a signal encoded by the indicia. The indicia of the prior art, which can be a sound indicia is formed out of an invisible dye. The sound indicia of the prior art is preferably a dye having special absorption in the infrared region or ultraviolet region of the radiation spectrum. Such a dye is selected so that the dye does not absorb or fluoresce light in the human visible spectrum, but which is visible to optical reading devices capable of illuminating the indicia with infrared or ultraviolet light. For this purpose, the dye of the prior art may be 4,4"-bis(triazin-2-ylamino)stilbene-2,2'-disulfonic

acids; 2-(stilben-4-y)naphthotriasoles; or 2-(4-phenylstelben-4-yl)benzoxazoles, or other suitable dye.

Other systems which use detectors to detect and trigger the expression of encoded multimedia content, including sounds, from printed material include those disclosed in U.S. Patent No. 6,556,690. The '690 patent discloses a system where data is encoded in an image field on a photographic print and can be reproduced as sound information.

U.S. Patent No. 6,094,279 discloses a system and process that uses infrared dyes to integrate data, in a visually imperceptible form, into a printed color image. This system allows for encoding of voice or sound data into a still print and uses an optical reader.

Still other systems employ areas called "active colors" on the print. Active colors are colored areas that can be recognized by a detector and decoded. U.S. Patent No. 5,869,828 discloses a color coding system for encoding information on products and other substrates where the color code is printed using single intensity colors in specific shapes that can be easily read.

U.S. Patent No. 6,141,441 discloses a technique for decoding message data that has been encoded into a printed color image made up of small color regions called signal cells that carry the encoded message.

Printed surfaces can provide more valuable sources of information if the images can be expressed in audio, visual or other form in addition to the static image on the surface. For example, children and adults who are learning how to read could benefit from books and other print media that provide information relating to the visual images in sound and/or video form. Users who are visually impaired or have a learning disability could similarly benefit from such a system. Readers who are trying to learn a foreign language could benefit from a system that provides audio output of the print content.

The art has heretofore not provided systems which can express the visual content of the printed medium in audio, video or web-based form. A simple yet comprehensive and unobtrusive system is needed for providing audio, visual and/or other expressions corresponding to the print content.

OBJECTS OF THE INVENTION

It is a primary object of the present invention to provide a surface having visible images thereon with indicia coding for audio, visual or other media presentations and means for reading those indicia to trigger the presentations.

It is a related object of the invention to provide a user-friendly, educational or entertainment tool employing light as a means of triggering an audio presentation, web-based streaming video or flash media presentation, or other media presentations from a printed surface to enhance the educational or entertainment value thereof.

It is a further object of the invention to provide a simple, user-friendly system for detecting and triggering audio, web-based streaming video or flash media, or other media presentations encoded in a printed surface using a portable handheld device to trigger presentations encoded in different portions of the surface.

SUMMARY OF THE INVENTION

The present invention provides a system and methods for expressing audio, video or other media presentations, referred to as "media assets," corresponding to specific, color coded zones on printed or other surfaces. The system may include the page of a book or other printed surface having one of more visual images and one or more discrete colored zones which code for a particular media asset. Such a media asset may constitute, without limitation a particular audible message, a streaming video presentation or other media presentation.

The colored zones are incorporated onto the printed material so that a person using the system, a "user", can recognize the presence of the specific colored zone but is not distracted by it as would occur with a barcode or other mechanical symbol. Each colored zone is surrounded by or overlaid with a substance, e.g., an ink, which is invisible to the user but which can be detected using light. The colored zones can be printed in any shape, but circular, rectangular or elliptical shapes are generally preferable. The shape is desirably chosen to match the shape of the sensor on a "reader" which triggers the media asset for which the colored zones code.

The system includes a media asset triggering device. This may be, for example, a reader, resembling a flashlight, for optically sensing and reading the specific colored zones. Alternatively, the reader may be a sensor that measures the

value (i.e., RGB) of a colored zone printed on a page thereby triggering an audio file played locally from the reader or triggering access, via a nearby computer, to a particular HTML webpage, streaming video or flash animation located on a particular web server.

In a preferred embodiment, the reader includes means for directing a beam of violet light, means for directing a beam of white light and a light detector for detecting light of various wavelengths emanating from or reflected by the colored zones and the invisible ink overlaid upon or surrounding those zones.

The system and methods aid a user by playing audio, or wirelessly triggering a web hyperlink command to a computer receiver to display HTML, video, flash animation, or express other web-based media content to complement the visual information on the printed surface. The user can proceed at his or her own pace in a nonlinear fashion. It is contemplated that any person of any age may use the present invention. The present invention can be used for educational purposes such as improving reading skills, learning a foreign language or otherwise enhancing children's books and textbooks. The invention can also be used for entertainment purposes.

BRIEF DECRIPTION OF THE DRAWINGS

FIG. 1 is a printed page of a children's book using the present invention depicting visual information and colored zones encoding for an audio or video presentation.

FIG. 2 is a portable, flashlight type reader of the present invention, for use in triggering audio or hyperlink-activated video presentations from colored zones on the printed page.

FIG. 3 is a further embodiment of the reader depicting a stylus detector for use in triggering an audio or video presentation from a visibly colored zone on the printed page.

FIG. 4 is a docking station of the present invention, used in synchronizing a reader of the present invention with a computer for activation of video from hyperlinks encoded in the printed page.

DETAILED DESCRIPTION OF THE INVENTION

The present invention is a system for activating audio, web-based streaming video, flash animation or other media presentations from a visible

surface, e.g., a printed surface. The surface includes one or more visible images and one or more discrete colored zones which encode for a particular audio, video or other media presentation. As used herein the term "visual surface" may include any surface which includes one or more visual representations. Visual surfaces include, without limitation, the pages of print media, game boards, packaging, signs, exhibits or three-dimensional objects.

In an alternative embodiment of the invention, the printed surface contains a plurality of visual images and includes one or more discrete, visually colored zones which encode for a particular sound. Each of those zones are surrounded by or overlaid with an invisible substance, e.g., an invisible ink, which fluoresces when light is shone upon it. The ink is invisible to the user but can be detected when light of a certain wavelength causes it to fluoresce and the fluorescent light is detected.

The system includes a reader for triggering the presentation which comprises a light source and a light detector for detecting light reflected from one or more colored zones which code for the presentation. One preferred embodiment of this system includes a sound player which plays a sound when light is reflected from a colored zone and is detected by the detector. In an alternative embodiment of this system, the reader detects a printed color in the printed surface that codes for a web-based hyperlink. The detector of the reader sends a wireless signal to a receiver, such as a computer, to pull up a particular webpage, flash media, or streaming video content. In addition to flash media, the system can employ various types of web based media, including, but not limited to, HTML, XML, databases, JAVA and JAVA applets, Flash and other vector based graphics, rastor graphics, audio, image types including .jpeg and .gif image types, video, documents including .doc and .pdf document types, and hypertext markup languages.

The reader may comprise a flashlight-like reader capable of directing a first beam of violet light, followed by a second beam of white light, within the visible spectrum. The first beam serves to determine whether or not invisible ink is present on the printed surface. In a preferred embodiment, the first beam generates violet light of 405 nm which causes the invisible ink to fluoresce and that fluorescent light is detected. The second beam serves to establish the color value of the visible ink printed on the surface. While described for convenience as a "flashlight," the reader

of the invention includes any convenient, hand-held housing which contains the several components of the triggering device.

The reader includes a light detector for detecting light of different wavelengths within the visible spectrum. A light detector functions like a color measuring chip, as it detects light fluorescing from the invisible ink when that ink is contacted by the beam on the violet edge of the visible spectrum and it detects light within the visible spectrum reflected from the visually colored zones. The reader includes a switch activated by the light detector when light is detected. If invisible ink is detected on the surface to be measured, a switch activates a processor which causes the flashlight to emit the second beam of white light. When visible light reflected from the colored zone is detected, a sound player is activated which plays a particular audible message encoded for by the colored zone.

An inner, opaque, sensor pipe curtains off ambient light and contains the light detector and sources of light. The inner pipe desirably makes even contact with the surface of the printed medium. An outer cone permits the flashlight to be centered on a visually colored zone. The outer cone desirably has a circumference such that both the visually colored area and the zone of invisible ink surrounding that zone, if any, are encompassed by the outer cone. This arrangement shields the detector from outside light and avoids a variation or fluctuation in color measurement by the sensor.

The forward part of the flashlight has a first light emitting diode for emitting a first beam of violet light, a second light emitting diode for emitting a second beam of white light and a light detector for detecting wavelengths of light reflected from the visible colored zone and emanating from the visible ink.

The forward part of the flashlight comprises an inner pipe surrounding the first light emitting diode, the second light emitting diode and the light detector. The length of the inner pipe is set to space the light detector at a predetermined distance from the colored zones so that it can accurately measure light reflected from those zones and from the invisible ink overlaid upon and/or surrounding those zones. Desirably the configuration of the opening of the pipe matches that of the colored zone so the light detector can detect essentially all of the light reflected by the colored zone at which it is directed. The forward part of the flashlight has an outer cone circumferentially surrounding the sensor pipe. The diameter of the outer

cone is set so that the outer cone, and the flashlight itself, can be centered on, i.e. registered on a visually colored zone and so that the visually colored zone and the invisible ink contained within that zone, if any, are both encompassed by the outer cone.

In a preferred embodiment of the invention, the outer cone may be transparent. This will permit the user to view a message, such as a printed word, written with invisible ink within the colored zone. The user can then see and read the information displayed between the inside of the transparent cone and the outer edge of the opaque sensor pipe. To illuminate these otherwise invisible characters, the forward part of the flashlight may have third and fourth light emitting diodes which emit violet light. These are located between the inner sensor pipe and the outer cone.

The central part of the flashlight houses a first switch activated by a user. The first switch activates the first or the first, third and fourth light emitting diodes. The sensor pipe houses a second switch activated by the light detector when light emanates from the invisible ink and is detected. The switch causes the second light emitting diode to emit white light. The back part of the flashlight has a speaker which plays a sound coded for by the visually colored zone when light of a particular wavelength reflected from the visually colored zone is detected.

Fig. 1 depicts a page of a book for children. The page shown is printed with several images and several colored circles. The colored circles encode sounds associated with the images. These sounds are triggered by the triggering device. Page 100 includes an image of a truck or other artwork 102, text 110 and visible colored circles 104 printed by a traditional four color (CMYK) process. Colored circles 104 are surrounded by annular invisible zone 106 which is printed with invisible ink. A hinged flap 108 is also present. When the invisible ink is detected, the system for detecting and triggering a sound from visible circle 104 is activated. A hidden word 112 may be printed in invisible ink within the annular invisible zone 106. As shown, it contains a printed word.

The colored zones may be in irregular shapes rather than circles, rectangles or ellipses. All colored zones are identified as either active or inactive by the presence of absence of the invisible ink. The absence of invisible ink will prevent the detector from sensing incidental artwork as active colors which encode

a presentation. The primary function of the invisible ink is error prevention but it also performs the function of adding hidden messages in the system. The hidden messages are illuminated by the violet LEDs.

Fig. 2 illustrates a flashlight detector for use in reading educational materials. Flashlight 200 includes outer case 202 and 204 and a clear plastic cone 206. It includes battery compartment 208, battery cover 210, battery cover screw 212 and batteries 214.

Flashlight 200 includes an onboard circuit with software to measure the color values of the colored areas enclosed in embedded memory module 216 inserted into memory module slot 218. Module 216 contains stored audio files, memory module contacts 220, an onboard speaker 222 to play a specific, pre-loaded audio file. Speaker 222 is activated by FM transmitter 224 and is covered by speaker cap 226.

An LED power switch 228 is activated by the detector when violet light from the invisible medium, is detected by optical color sensor 230 within inner sensor pipe 232. The sensor is preferably a Taos 230 color sensor, which is a RGB sensor, although an equivalent RGB or CMYK sensor could also be used. LED power switch 228 causes the flashlight to emit light within the visible spectrum from white LED 234 and violet LED 236. The system plays a sound coded for by a visually colored area of Fig. 1. The sound signal is triggered when a particular wavelength of light, reflected from the visually colored area, is detected and activates switch 228.

Flashlight 200 also includes headphone jack 233 for headphones so that the reader can hear the audio signals without disturbing or distracting others. The device contains USB jack 240.

Fig. 3 illustrates a further embodiment of the invention including a stylus detector 300 for use with printed or other materials of the invention. Stylus detector 300 contains LED screen 302 where an image can be presented. The stylus contains several buttons which allow the user to direct the detector, including a next chapter button 304, a previous chapter button 306, a next track button 308, a previous track button 310 and a play/pause button 312. Stylus 300 can emit and detect light of various wavelengths. It emits light through white LED 314 and violet LED 316. It detects light in sensor 318 and sensor pipe 320. The stylus detector

can be connected to headphones via headphone jack 322. The device is encased in contoured housing 324 made of plastic or other flexible material.

Fig. 4 illustrates a docking station 500 of the present invention used in synchronizing a stylus or reader with a computer (not shown). The system depicted can detect colors on printed material that code for a web page containing streaming flash animation on a web browser. Docking station base 502 contains a well 504 for insertion of the reader or stylus. A USB cable 506 connects the base to the USB port of a computer. The system also employs a PCB 508 and a bluetooth wireless receiver 510 for detecting the signal sent from the reader or stylus after it encodes the hyperlink through wireless transmission. A processor 512 processes the hyperlink. The docking station includes power conditioner 514 and charging pin 516.

Embodiments of the invention can be used for educational and entertainment purposes. One embodiment is a book for children 2-8 years old which assists in reading or learning a language. The system will enable the user to hear associated sounds and hidden messages encoded in the printed material that are detected by the reader. The printed pages contain a layer of invisible ink on and/or surrounding colored zones on the pages which code for sounds and/or reveal hidden messages, such as the hidden word illustrated in Fig. 1.

The books may include discrete circles of solid visible colors on the pages and behind various flaps built into the pages. The circles are printed in a uniform, solid color, but each circle differs from the others in color value, and will include a layer of invisible ink on and/or surrounding the circle.

In a preferred embodiment, the layers of invisible ink are printed in circles that are approximately one half of the diameter of the visible circles. These smaller invisible ink circles are centered within the colored circles. Hidden messages can also be printed on the visible circles using invisible ink. These are printed between the outer edge of the invisible circle and the outer edge of the visible colored circle, as depicted in Fig. 1.

The invisible ink cannot be seen by the user without the reader but is detectable with the reader. If the reader detects the presence of invisible ink on and/or surrounding a visible colored circle, when the sensor of the reader is placed over the circle, the device will measure the color value of the visible colored circle.

After measuring the color value of the visible circle, the reader will play a corresponding audio file associated with the color that has been measured. All audio files are stored on the flash memory chip installed in the reader prior to operation. Different flash memory chips can be provided that correspond to the various audio files contained in a particular book.

In one embodiment, when playing the sound file, the device will activate the additional 405 nm violet LEDs outside the inner tube. This violet light illuminates the hidden word or text message printed on the colored circles. As shown in Fig. 1, this word may correspond to the visible artwork on the page, as well as to the sounds that the device plays after measuring the color value.

When using the device, the user first opens the book and looks at the page. The user identifies a colored circle printed on the page. The user then places the reader onto the center of the circle so that the inner sensor tube is placed in direct contact with the colored circle. A manually operated switch built into the face of the reader activates a 405 nm violet LED in the sensor. If invisible ink is present on the surface at which the reader is directed, the invisible ink will fluoresce and light from that fluorescence will be detected by the light detector. A switch activated by the light detector will turn off the 405 nm violet LED inside the sensor and turn on the white LED inside the sensor. The violet LEDs outside the sensor and inside the outer tube will also be turned on. The color sensor then measures the visible color value of the circle. The detector and an associated processor then plays the corresponding sound file through the onboard speaker, onboard headphone jack, or external FM radio via the onboard FM transmitter, as shown in Fig. 2. The two violet LEDs activated outside the sensor pipe illuminate the hidden word written in the invisible ink.

Once the device has detected the presence of invisible ink and accurately measured the color value of the visible color, the device will play the sound to completion without interruption, even if the user removes the reader and sensor to break contact with the surface of the printed material. However, the reader will release the pressure switch built into the face of the reader if the user moves the reader to another colored circle and the presence of invisible ink is detected. The device will cease playing the audio file and will commence playing a new audio file corresponding to the new visible color measurement. If no invisible

ink is detected in the new position, the device will continue to play the first audio file to completion without interruption.

In another embodiment, the invention can be used by students and adults in a modified form, as indicated in Fig. 3. The modified student/adult reader shown in Fig. 3 does not include a light cone for revealing hidden messages. However, this reader includes a multipurpose USB computer cradle, as shown in Figs. 3 and 4. The student/adult reader additionally includes a wireless internet hyperlinking transmitter that communicates between the device and computer cradle. This cradle, shown in Fig. 4, performs three functions. First, it serves to recharge the rechargeable battery inside the reader. Secondly, the docking station cradle depicted in Fig. 4 allows for wireless reception of internet hyperlink triggers from the reader and communicates those hyperlink triggers to a computer connected to the internet via USB cable or an equivalent. Finally, the cradle serves to download new internet-based audio files into the device in a manner similar to many MP3 players known in the art.

The student/adult reader, like the child reader, detects colors printed onto the pages of text books or other printed surfaces by detecting colors of different wavelengths printed on the page. Active colors may be printed in small (1/4" x 5/8") rectangles or ellipses. The shapes for these zones may be used to designate the types of medium to which it links, e.g., rectangles may play sounds, ellipses may hyperlink to web-based media, etc. The rectangles or ellipses can be covered by a layer of invisible ink to enable the device to recognize the colors as active and/or may be surrounded by a zone of invisible ink. The invisible ink may completely or partially overlay the colored zone.

The adult/child reader pulses a 405 nm violet light at the target. If invisible ink is detected, the reader measures the visible light associated with the particular color zone printed on the page. The color zones may be circles, rectangles or ellipses separated from the images on the page or may be printed in smaller color patches or included in the artwork or the text.

The light cone depicted in Fig. 2 is included with the children's embodiment. The outer tube or cone permits the child to register the reader on the color zone. The student/adult reader does not include an outer cone. It can read a

color zone of any shape but the opening in the sensor tube must be large enough and configured so that it can effectively read the color zone at which it is directed.

In another embodiment, the invention can be used for entertainment purposes such as a board game. The board games are printed in a manner similar to books, and can employ either the children's or student/adult version of the reader. The board games are used like the books and are printed with both invisible and visible inks that can be detected and measured. Hidden messages in a children's version, audio messages and computer hyperlinked media in a student/adult version will direct and inform the user of the board game.

Another embodiment of the invention includes multimedia printed exhibits. The exhibits may be designed in concert with either of the two readers described. As with the board games, the exhibit is printed in advance with visible and invisible colors corresponding to specific audio or web based media.

What is claimed is:

1. A system for supplementing the information in a surface containing a visible image by providing a portal to another medium of expression, comprising:

(a) a surface containing a visible image and a discrete visually colored zone which codes for a particular medium of expression, said colored zone being overlaid or surrounded by a zone of an invisible fluorescent substance; and

(b) a reader, including (i) means for directing a first beam of light capable of causing said invisible fluorescent substance to fluoresce, (ii) means for directing a second beam of light within the visible spectrum, (iii) a light detector, (iv) means activated by said light detector when light emanating from said invisible fluorescent substance is detected which causes said reader to emit said second beam of light, and, (v) means to activate a presentation coded for by the visually colored zone when light of a particular wavelength reflected from said visually colored zone is detected.

2. An educational or entertainment system capable of activating audio, web-based streaming or flash video presentations from designated portions of a printed surface containing visual images, comprising:

(a) a surface containing a plurality of visible images and containing a plurality of discrete, visually colored zones which code for particular presentations, each of said colored zones being overlaid by or surrounded by a zone of invisible fluorescent substance which can be detected by the use of light and means for detecting same;

(b) a portable reader comprising (i) a sensor pipe, (ii) means for directing a first beam of light and means for directing a second beam of light within the visible spectrum, located within said sensor pipe, (iii) a light detector located within said sensor pipe, (iv) means activated by said detector when light of a certain wavelength is detected which causes said reader to emit a second beam of light, (v) a transparent outer cone surrounding said sensor pipe, and (vi) means for presenting audio, web-based or flash video presentations coded for by the visually colored zones when light of a particular wavelength within the visible spectrum is reflected from a visually colored area and detected.

3. The system of claim 2 wherein the visually colored zone codes for an audible message and a sound player plays a sound when light reflected from the visually colored zone is reflected and detected by the detector.

4. The system of claim 2 wherein the visually colored zone codes for a web-based hyperlink and the detector sends a wireless signal to a computer to pull up a particular webpage, flash media or streaming video content.

5. The system of claim 2 where the first beam of light is visible violet light with a wavelength at or about 405 nm.

6. The system of claim 2 where the second beam of light is visible white light.

7. The system of claim 2 where the first beam of light is visible violet light with a wavelength of about 405 nm and the second beam of light is visible white light.

8. A surface including one or more visible images and one or more discrete colored zones which code for a particular medium of expression, said colored zones being capable of reflecting light within the visible spectrum in response to a directed beam of light.

9. A printed surface, including a visible image and a discrete colored zone, said zone coding for a particular medium of expression and being capable of reflecting light within the visible spectrum in response to a directed beam of light, said visually colored zone being overlaid by and/or surrounded by a zone of invisible fluorescent substance.

10. A portable reader for activating audio, web-based streaming or flash video from designated portions of a surface containing visual images and one or more colored zones coding for said media, comprising:

(a) means for directing a first beam of light at a first wavelength;

(b) means for directing a second beam of light within the visible spectrum;

(c) a light detector;

(d) means for spacing said instrument at a distance from the said surface and preventing extraneous light from entering said detector;

(e) switch means activated by said detector when light of a certain wavelength is detected; and

(f) means for expressing audio, web-based streaming or flash video coded for by visually colored zones in said surface when light of a particular wavelength is detected.

11. A portable reader for activating audio, web-based streaming or flash video presentations from designated portions of a printed surface containing visual images and one or more discrete colored zones coding for said media, comprising:

(a) means for directing a first beam of light;

(b) means for directing a second beam of light within the visible spectrum;

(c) a light detector;

(d) means activated by said detector when light of a certain wavelength is detected which causes said reader to emit said second beam of light; and

(e) means for presenting audio, web-based or flash video presentations coded for by the visually colored zones when light of a particular wavelength within the visible spectrum is reflected from a visually colored zone and detected.

12. A portable reader as recited in claim 11 wherein said means for directing beams of light and said light detector are housed within a sensor pipe.

13. A portable reader as recited in claim 12 wherein the length of said sensor pipe is set to displace said light detector from the printed surface so that it effectively reads light emanating from or reflected from said printed surface and curtains off extraneous light.

14. A portable reader as recited in claim 13 wherein the opening of said sensor pipe matches said visually colored zone.

15. A portable reader as recited in claim 12 further including an outer cone around said sensor pipe.

16. A portable reader as recited in claim 15 wherein said outer cone is transparent.

17. A portable reader as recited in claim 15 wherein one or more light sources are provided in the annular space defined between said sensor pipe and said outer cone.

18. A portable reader as recited in claim 17 wherein a light source within said annular source provides violet light.

19. A portable reader for activating audio, web-based streaming or flash video presentations from designated portions of a printed surface containing visual images and one or more discrete colored zones coding for said media, said zones being overlayed and/or surrounded by an invisible ink, comprising:

(a) a sensor pipe;

(b) means for directing a first beam of light and means for directing a second beam of light within the visible spectrum, located within said sensor pipe;

(c) a light detector located within said sensor pipe;

(d) means activated by said detector when light of a certain wavelength is detected which causes said reader to emit said second beam of light;

(e) a transparent outer cone surrounding said sensor pipe;

(f) means for presenting audio, web-based or flash video presentations coded for by the visually colored zones when light of a particular wavelength within the visible spectrum is reflected from a visually colored zone and detected.

20. A portable reader as recited in claim 19 wherein the length of the sensor pipe is displaces said light detector from the printed surface so that it effectively reads light emanating from or reflected from that surface and curtains off extraneous light, further wherein the size and shape of the sensor pipe matches the visually colored area.

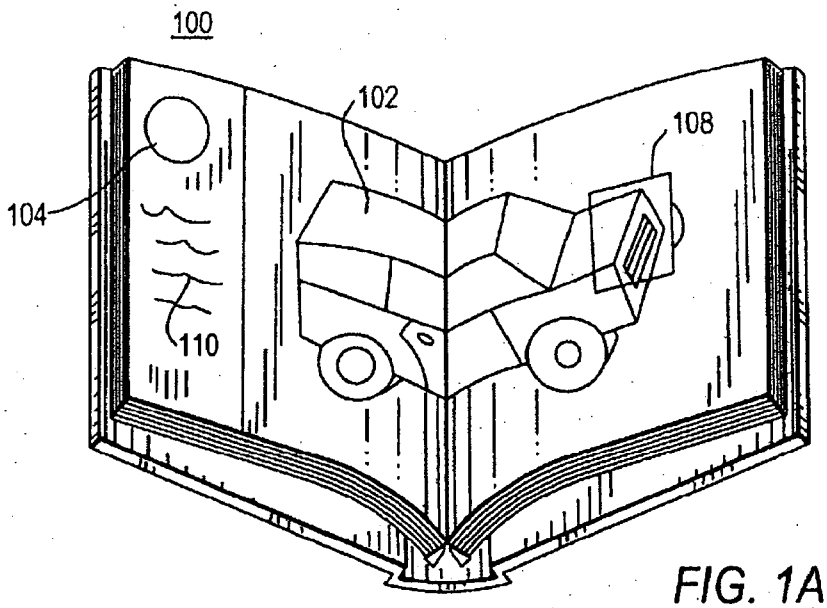

FIG. 1A

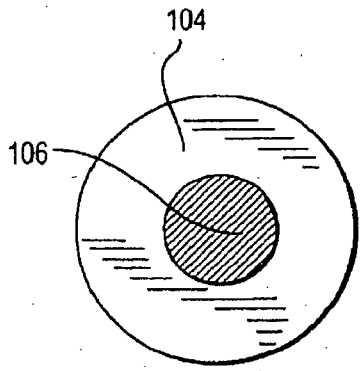

FIG. 1B

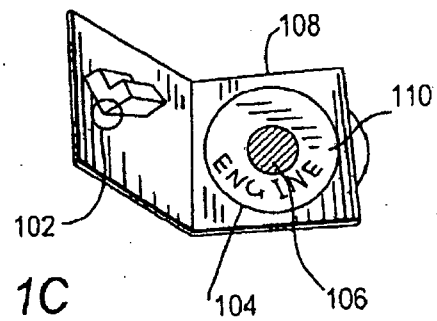

FIG. 1C

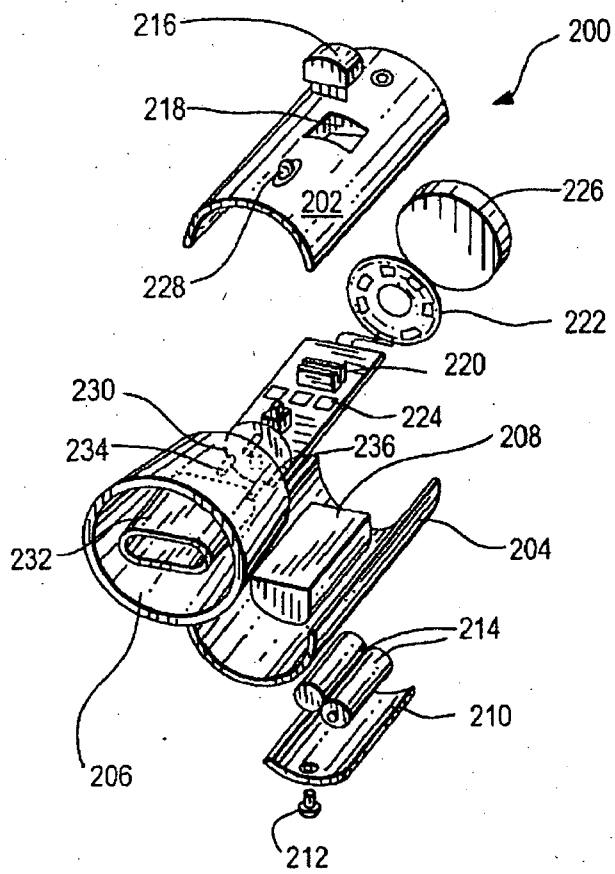
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FIG. 2A

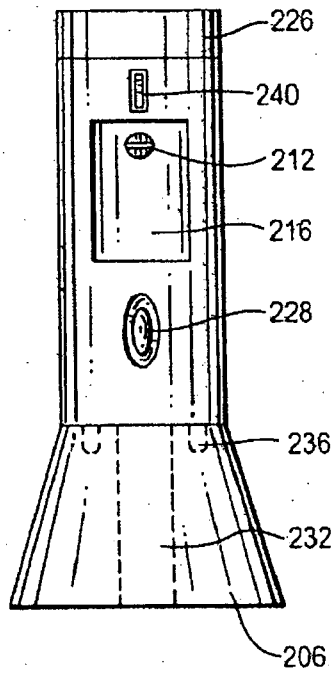
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FIG. 2B

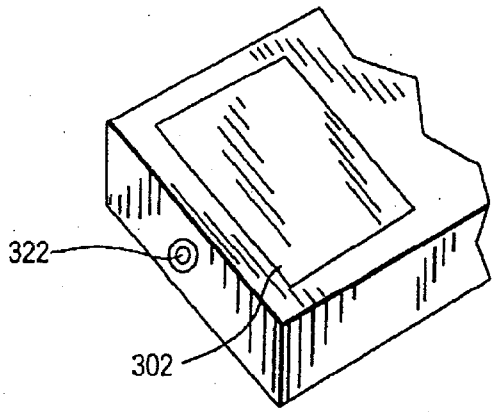

FIG. 3A

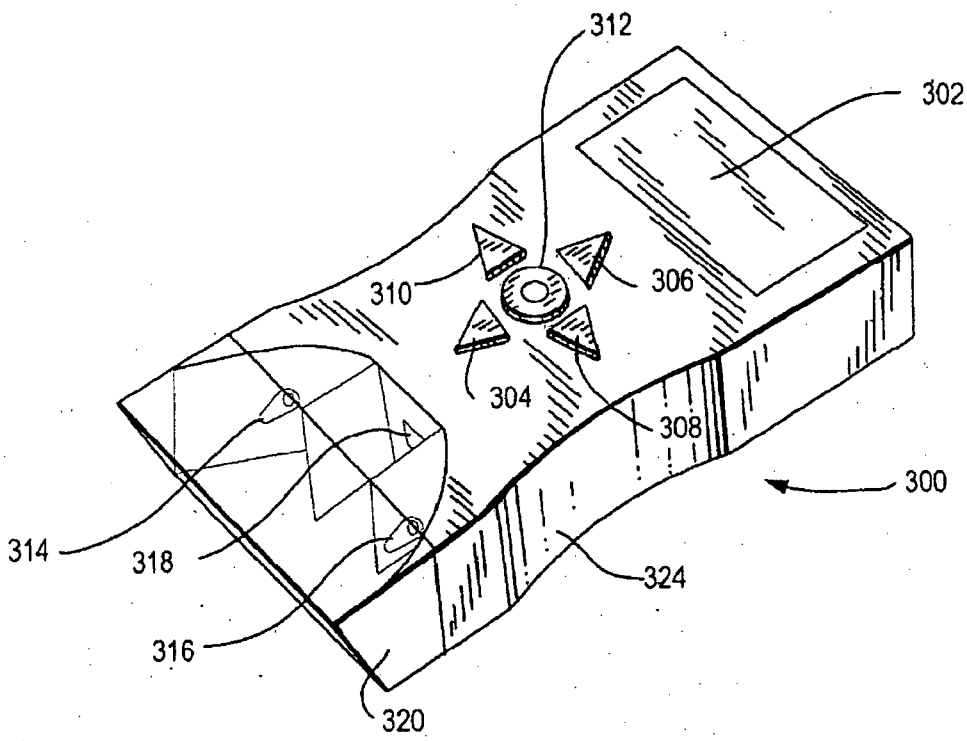

FIG. 3B

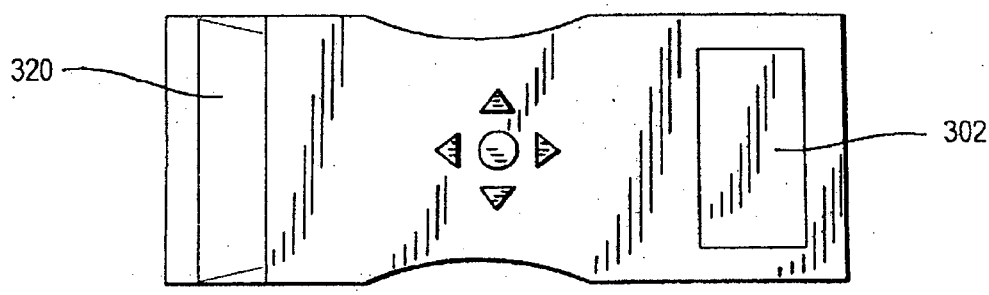

FIG. 3C

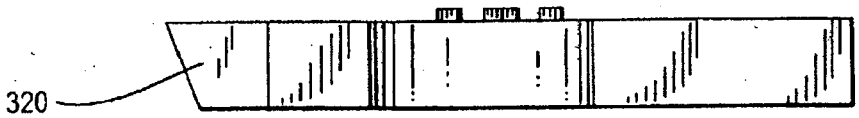

FIG. 3D

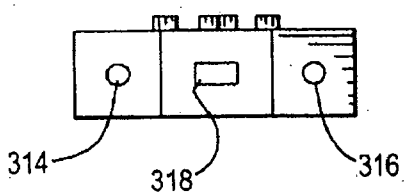

FIG. 3E

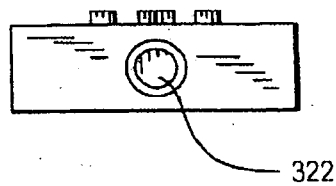

FIG. 3F

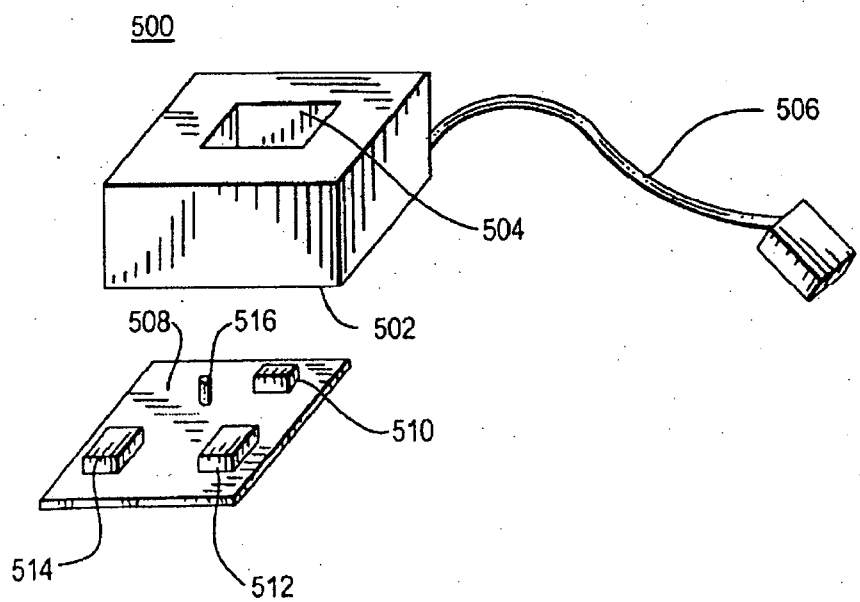

FIG. 4