

(12) **United States Patent**  
**Loos**

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(45) **Date of Patent:** **Jan. 14, 2003**

(54) **NERVOUS SYSTEM MANIPULATION BY ELECTROMAGNETIC FIELDS FROM MONITORS**

(76) **Inventor:** **Hendricus G. Loos**, 3019 Cresta Way, Laguna Beach, CA (US) 92651

(\* ) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 8 days.

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(52) **U.S. Cl.** ..... **600/27; 600/545**

(58) **Field of Search** ..... **600/9-27, 545; 313/419; 324/318; 378/901; 434/236**

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*Primary Examiner*—Eric F. Winakur

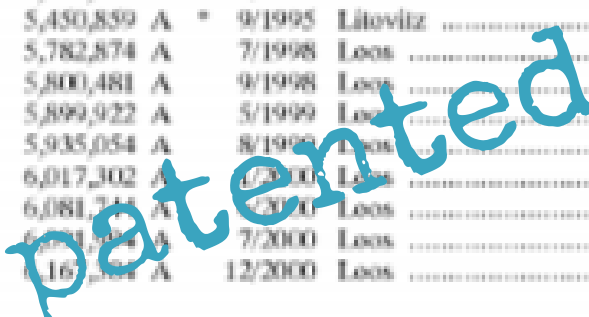
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(57) **ABSTRACT**

Physiological effects have been observed in a human subject in response to stimulation of the skin with weak electromagnetic fields that are pulsed with certain frequencies near 1/2 Hz or 2.4 Hz, such as to excite a sensory resonance. Many computer monitors and TV tubes, when displaying pulsed images, emit pulsed electromagnetic fields of sufficient amplitudes to cause such excitation. It is therefore possible to manipulate the nervous system of a subject by pulsing images displayed on a nearby computer monitor or TV set. For the latter, the image pulsing may be imbedded in the program material, or it may be overlaid by modulating a video stream, either as an RF signal or as a video signal. The image displayed on a computer monitor may be pulsed effectively by a simple computer program. For certain monitors, pulsed electromagnetic fields capable of exciting sensory resonances in nearby subjects may be generated even as the displayed images are pulsed with subliminal intensity.

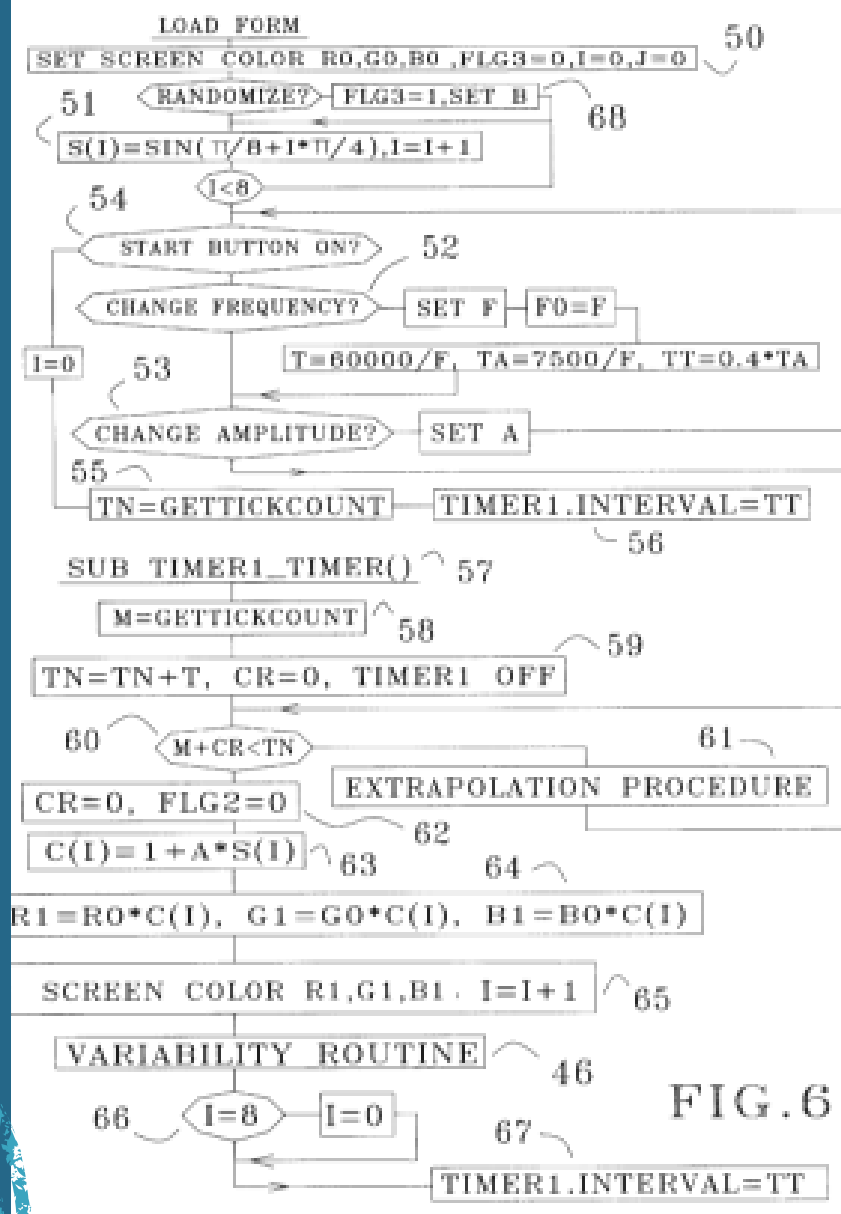
**14 Claims, 9 Drawing Sheets**

**NERVOUS SYSTEM  
MANIPULATION**  
by electromagnetic  
fields from  
**MONITORS**

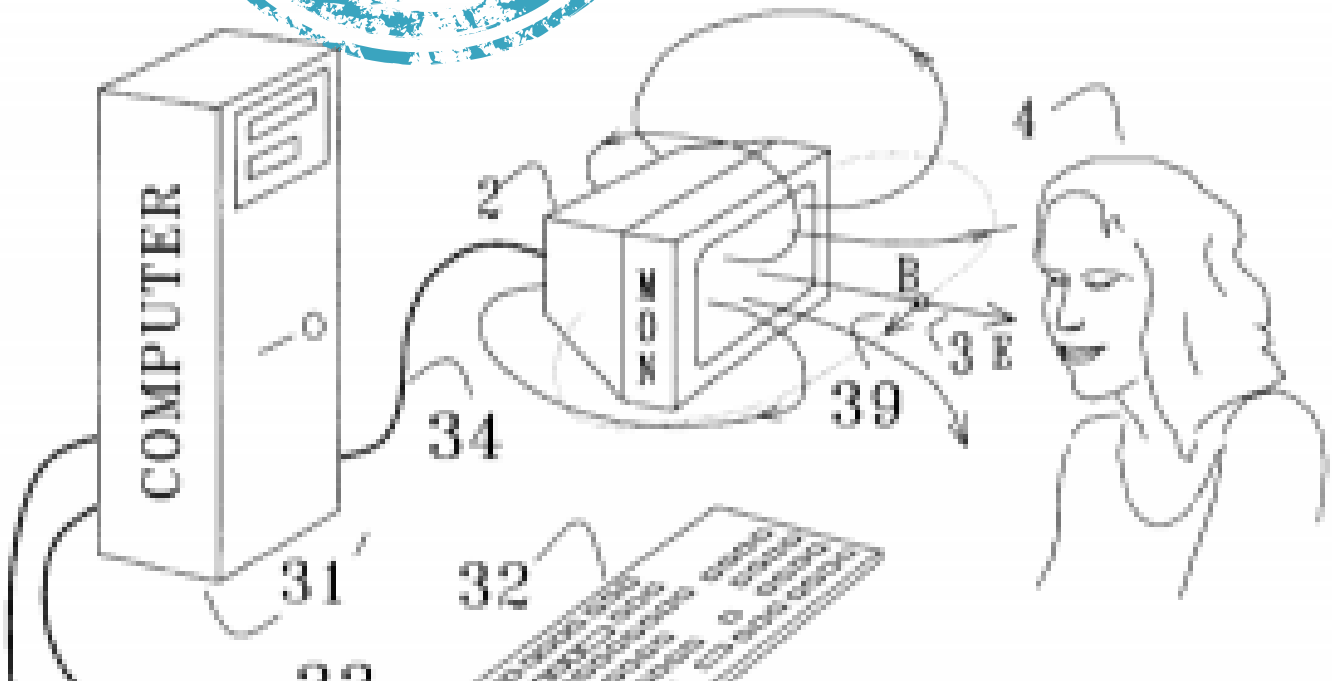


NERVOUSSYSTEM  
 MANIPULATION  
 BY MONITORS

MssKitt



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**USP # 6,006,188 (December 21, 1999)**

**Speech Signal Processing for Determining Psychological or Physiological Characteristics...**

**Bogdashevsky, Rostislav, et al.**

**Abstract** --- A speech-based system for assessing the psychological, physiological, or other characteristics of a test subject is described. The system includes a knowledge base that stores one or more speech models, where each speech model corresponds to a characteristic of a group of reference subjects. Signal processing circuitry, which may be implemented in hardware, software, and/or firmware, compares the test speech parameters of the test subject with the speech models. In one embodiment, each speech model is represented by a statistical time-ordered series of frequency representations of the speech of the reference subjects. The speech model is independent of a prior knowledge of style parameters associated with the voice or speech. The system includes speech parameterization circuitry for generating the test parameters in response to the test subject's speech. This circuitry includes speech acquisition circuitry, which may be located remotely from the knowledge base. The system further includes output circuitry for outputting at least one indicator of a characteristic in response to the comparison performed by the signal processing circuitry. The characteristic may be time-varying, in which case the output circuitry outputs the characteristic in a time-varying manner. The output circuitry also may output a ranking of each output characteristic. In one embodiment, one or more characteristics may indicate the degree of sincerity of the test subject, where the degree of sincerity may vary with time. The system may also be employed to determine the effectiveness of treatment for a psychological or physiological disorder by comparing psychological or physiological characteristics, respectively, before and after treatment.

determining

psychological

or fisiological

characteristics

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**USP # 5,868,103 (February 9, 1999)**

**Method and Apparatus for Controlling an Animal**

**Boyd, Randal**

**Abstract** --- An apparatus for controlling an animal wherein the animal receives a control stimulus of the release of a substance having an adverse effect upon the animal as a corrective measure. The apparatus includes a transmitter for producing a transmitted field, and a releasable collar for attaching to the neck of the animal. The collar includes a receiver for receiving the transmitted field and for producing a

controlling

an

animal

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**USP # 6,011,991 (January 4, 2000)**

**Communication System & Method Including Brain Wave Analysis...**

**Mardirossian, Aris**

**Abstract** --- A system and method for enabling human beings to communicate by way of their monitored brain activity. The brain activity of an individual is monitored and transmitted to a remote location (e.g. by satellite). At the remote location, the monitored brain activity is compared with pre-recorded normalized brain activity curves, waveforms, or patterns to determine if a match or substantial match is found. If such a match is found, then the computer at the remote location determines that the individual was attempting to communicate the word, phrase, or thought corresponding to the matched stored normalized signal.

remote

brainwave

analysis

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**USP # 5,551,879 (September 3, 1996)**  
**Dream State Teaching Machine**  
**Raynie, Arthur D.**

**Abstract** --- A device for enhancing lucidity in the dream state of an individual.

The device includes electronic circuitry incorporated into a headband for the user to wear while sleeping. The circuitry includes a detector for fitting adjacent to the eye of the sleeping individual, for detecting Rapid Eye Movement (REM), which occurs during the dream state. The detector emits a signal that is evaluated by additional circuitry to determine whether or not REM sleep is occurring. If REM sleep is occurring, a signal is generated to operate a recorder, which typically plays prerecorded messages through the headphones engaging the ear of the sleeping individual.

dream  
state  
teaching  
machine

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**USP # 5,784,124 (July 21, 1998)**  
**Supraliminal Method of Education...**  
**D'Alitalia, Joseph A., et al.**

**Abstract** --- A method of behavior modification involves having a patient view supraliminal video messages superimposed upon an underlying video presentation. The video messages incorporate messages wherein at least some of the messages link a desired modified behavior to positive feelings of the patient. A supraliminal message generator and superimposer iteratively selects individual messages for display from the sequence of messages, decompressing the messages as required, and places the selected messages in a buffer memory of a video generation device. A processor of the supraliminal message generator and superimposer then fades the selected message from an invisible level to a visible level on the video display, and then fades the selected message from the visible level back to the invisible level.

subliminal  
method of  
education

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**USP # 4,699,153 (October 13, 1987)**  
**System for Assessing Verbal Psychobiological Correlates**  
**Shevrin, Howard, et al.**

**Abstract** --- A system for assessing psychobiological conditions of a subject utilizes a plurality of words which are selected to be in four categories as critical stimuli. The words are presented by a tachistoscope to the subject in subliminal and supraliminal modes of operation. Subliminal stimulation of the subject is achieved by presenting the selected words for an exposure period of approximately one millisecond. The supraliminal exposure time is approximately thirty milliseconds. Prior to stimulation, the subject is diagnosed in accordance with conventional psychoanalytical techniques to establish the presence and nature of a pathological condition. The words are selected and categorized in four groups: pleasant words, unpleasant words, words related to a diagnosed conscious pathological condition, and words related to a diagnosed unconscious pathological condition. The brain wave responses which are evoked by the stimulation are collected via electrodes and analyzed in accordance with a transinformation technique which is based on information signal theory for establishing a probabilistic value which corresponds to the information content of the evoked responses.

speech  
manipulation  
apparatus

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USP # 3,712,292 (January 23, 1973)

**Method & Apparatus for Producing Swept FM Audio Signal Patterns for Inducing Sleep**

Zentmeyer, J.

**Abstract** --- A method of producing sound signals for inducing sleep in a human being, and apparatus therefor together with REPRESENTATIONS thereof in recorded form, wherein an audio signal is generated representing a familiar, pleasing, repetitive sound, modulated by continuously sweeping frequencies in two selected frequency ranges having the dominant frequencies which occur in electrical wave patterns of the human brain during certain states of sleep. The volume of the audio signal is adjusted to mask the ambient noise and the subject is presented with any of several familiar, repetitive sounds most pleasing to him.

induce  
sleep

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USP # 3,629,521 (January 8, 1970)

**Hearing Systems**

Puharich, Henry K.

**Abstract** --- The present invention relates to the stimulation of the sensation of hearing in persons of impaired hearing abilities or in certain cases persons totally deaf utilizing RF energy. More particularly, the present invention relates to a method and apparatus for imparting synchronous AF or "acoustic" signals and so-called "transdermal" or RF signals. Hearing and improved speech discrimination, in accordance with one aspect of the present invention, is stimulated by the application of an AF acoustical signal to the "ear system" conventional biomechanics of hearing, which is delivered to the brain through the "normal" channels of hearing and a separate transdermal RF electrical signal which is applied to

hearing  
systems

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USP # 3,647,970 (March 7, 1972)

**Method and System for Simplifying Speech Waveforms**

Flanagan, G. Patrick

**Abstract** --- A complex speech waveform is simplified so that it can be transmitted directly through earth or water as a waveform and understood directly or after amplification.

speech  
waveform  
symplefier

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USP # 3,837,331 (September 24, 1974)

**System & Method for Controlling the Nervous System of a Living Organism**

Ross, S.

**Abstract** --- A novel method for controlling the nervous system of a living organism for therapeutic and research purposes, among other applications, and an electronic system utilized in, and enabling the practice of the invented method. Bioelectrical signals generated in specific topological areas of the organism's nervous system, typically areas of the brain, are processed by the invented system so as to produce an output signal which is in some way an analog of selected

control  
for a  
living  
organism

**USP # 5,245,666 (September 14, 1993)**  
**Personal Subliminal Messaging System**  
**Mikell, Bruce T.**

**Abstract** --- A personal subliminal messaging system includes a wide range linear subliminal modulator (43), a digital audio recording or play device (46), a microphone (51) to pick up the sound at the ear, and an earpiece (50) to deliver the subliminal message. The sound level at the user's ear is detected and measured. After risetime and decay conditioning of the varying dc control signal, the wide range linear modulator (43) uses this signal to control the level of the message to the earpiece (50). The user adjusts the system for a liminal of a subliminal level. The psychoacoustic phenomena of Post Masking is used to increase the integrity of the message in subliminal messaging systems.

**USP # 5,270,800 (December 14, 1993)**  
**Subliminal Message Generator**  
**Sweet, Robert L.**

**Abstract** --- A combined subliminal and supraliminal message generator for use with a television receiver permits complete control of subliminal messages and their manner of presentation. A video synchronization detector enables a video display generator to generate a video message signal corresponding to a received alphanumeric text message in synchronism with a received television signal. A video mixer selects either the received video signal or the video message signal for output. The messages produced by the video message generator are user selectable via a keyboard input. A message memory stores a plurality of alphanumeric text messages specified by user commands for use as subliminal messages. This message memory preferably includes a read only memory storing predetermined sets of alphanumeric text messages directed to differing topics. The sets of predetermined alphanumeric text messages preferably include several positive affirmations directed to the left brain and an equal number of positive affirmations directed to the right brain that are alternately presented subliminally. The left brain messages are presented in a linear text mode, while the right brain messages are presented in a three dimensional perspective mode. The user can control the length and spacing of the subliminal presentations to accommodate differing conscious thresholds. Alternative embodiments include a combined cable television converter and subliminal message generator, a combine television receiver and subliminal message generator and a computer capable of presenting subliminal messages.

**USP # 5,352,181 (October 4, 1994)**  
**Method & Recording for Producing Sounds and Messages...**  
**Davis, Mark E.**

**Abstract** --- A method and recording for use in achieving Alpha and Theta brain wave states and effecting positive emotional states in humans to enhance learning and self-improvement, is provided which includes a medium having a musical composition recorded thereon with an initial tempo decreasing to a final tempo and verbal phrases, comprising between approximately 4 and approximately 8 words, recorded in synchrony with the decreasing initial tempo.

**USP # 5,330,414 (July 19, 1994)**  
**Brain Wave Inducing Apparatus**  
**Yasushi, Mitsuo**

**Abstract** --- A random signal generator outputs a random noise signal to a band pass filter which selectively passes frequency components in the frequency range of a desired brain wave from a subject. The output of the band pass filter is supplied to an automatic level controller. The automatic level controller sets the output of band pass filter to a predetermined amplitude. Then, the output of the automatic level controller is fed to a signal generator, which converts the output of the automatic level controller into a signal for stimulating the subject in order to induce the desired brain wave state. The light signal is then emitted into the subject's eyes.

**USP # 4,889,526 (December 26, 1989)**  
**Non-Invasive Method & Apparatus for Modulating Brain Signals...**  
**Rauscher, Elizabeth A.**

**Abstract** --- This invention incorporates the discovery of new principles which utilize magnetic and electric fields generated by time varying square wave currents of precise repetition, width, shape and magnitude to move through coils and cutaneously applied conductive electrodes in order to stimulate the nervous system and reduce pain in humans. Timer means, adjustment means, and means to deliver current to the coils and conductive electrodes are described, as well as a theoretical model of the process. The invention incorporates the concept of two cyclic expanding and collapsing magnetic fields which generate precise wave forms in conjunction with each other to create a beat frequency which in turn causes the ion flow in the nervous system of the human body to be efficiently moved along the nerve path where the locus of the pain exists to thereby reduce the pain. The wave forms are created either in one or more coils, one or more pairs of electrodes, or a combination of the two.

**USP # 4,883,067 (November 28, 1989)**  
**Method & Apparatus for Translating the EEG into Music...**  
**Knispel, Joel, et al.**

**Abstract** --- A method and apparatus for applying a musical feedback signal to the human brain, or any other brain, to induce controllable psychological and physiological responses. A signal representing the ongoing electroencephalographic (EEG) signal of a brain preferably is obtained from the electrode location on the scalp known as CZ or P3 in clinical notation. A signal processor converts the ongoing EEG into electrical signals which are converted into music by synthesizers. The music is acoustically fed back to the brain after a time delay calculated to shift the phase of the feedback in order to reinforce specific or desired ongoing EEG activity from the scalp position of interest. The music is comprised of at least one voice that follows the moment-by-moment contour of the EEG in real time to reinforce the desired EEG activity. The music drives the brain into resonance with the music to provide a closed loop or physiological feedback effect. Preferably, the musical feedback comprises additional voices that embody psychoacoustic principles as well as provide the content and direction normally supplied by the therapist in conventional biofeedback. The invention contemplates numerous applications for the results obtained.

**USP # 5,480,374 (January 2, 1996)**  
**Method and Apparatus for Reducing Physiological Stress**  
**Van Dick, Robert**

**Abstract** --- Physiological stress in a human subject is treated by generating a weak electromagnetic field about a grounded electrode by the application of pulses of between 5 and 50 microseconds each at a pulse rate of between 0.5K and 10K pulses per second to a power electrode, the power electrode and grounded electrode being coupled to high voltage pulse generation means. A subject is positioned within the weak electromagnetic field for a period of time sufficient to cause an increase in his or her alpha or theta brain wave levels.

**USP # 5,479,941 (January 2, 1996)**  
**Device for Inducing Altered States of Consciousness**  
**Harner, Michael**

**Abstract** --- A rotating device for producing altered states of consciousness in a subject is provided. The subject's body rotates about a point in the center of the body support means at a speed between about 10 and about 60 revolutions per minute. In a preferred embodiment the direction of rotation is periodically reversed.

**USP # 5,392,788 (February 28, 1995)**  
**Method and Device for Interpreting Concepts and Conceptual Thought...**  
**Hudspeth, William J.**

**Abstract** --- A system for acquisition and decoding of EP and SP signals is provided which comprises a transducer for presenting stimuli to a subject, EEG transducers for recording brainwave signals from the subject, a computer for controlling and synchronizing stimuli presented to the subject and for concurrently recording brainwave signals, and either interpreting signals using a model for conceptual perceptual and emotional thought to correspond EEG signals to thought of the subject or comparing signals to normative EEG signals from a normative population to diagnose and locate the origin of brain dysfunctional underlying perception, conception, and emotion.

patented

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**USP # 5,221,962 (June 22, 1993)**

**Subliminal Device having Manual Adjustment of Perception Level of Subliminal Messages**

**Backus, Alan L., et al.**

**Abstract** --- A method and apparatus for presenting subliminal visual and/or audio messages which allows user verification of message content and presence, as well as proper adjustment of message obviousness while accounting for ambient conditions and user sensitivities is disclosed. This method and apparatus also presents synchronized reinforced sensory input of subliminal messages. This is performed by simultaneously overlaying images received from a VCR over a plurality of television signals. This apparatus directs overlay images over RF television signals having both audio and video components

**USP # 5,215,468 (June 1, 1993)**

**Method and Apparatus for Introducing Subliminal Changes to Audio Stimuli**

**Lauffer, Martha A., et al.**

**Abstract** --- A method and apparatus for introducing gradual changes to an audio signal so that the changes are subliminal. The changes can involve tempo and volume, for example, and can take the form of a gentle gradient having ever increasing/decreasing ramp-like changes over a sufficient duration, or a more complex program involving several gentle gradients. In the preferred embodiment, an enhanced audio play-back device such as a portable audio cassette recorder can be programmed to subliminally alter the characteristics of a standard pre-recorded tape containing music, for example. As a motivational tool during walking, jogging or other repetitive exercise, the tempo is gradually increased over a period of time to encourage a corresponding gradual (and subliminal) increase in physical exertion by a user whose rate of movement is proportional to the tempo of the music. The tempo can be either manually changed in conjunction with a subliminal program, or by itself in an override mode, or by itself in a version of the present-inventive audio play-back device which allows only manual tempo alternation. In an alternate embodiment, a special pre-recorded tape contains subliminal changes in tempo, for example, for play-back on a standard audio cassette recorder (which operates at one speed, only) to cause the same effect as the preferred embodiment.

**USP # 4,821,326 (April 11, 1989)**

**Non-Audible Speech Generation Method & Apparatus**

**MacLeod, Norman**

**Abstract** --- A non-audible speech generation apparatus and method for producing non-audible speech signals which includes an ultrasonic transducer or vibrator for projecting a series of glottal shaped ultrasonic pulses to the vocal tract of a speaker. The glottal pulses, in the approximate frequency spectrum extending from 15 kilohertz to 105 kilohertz, contains harmonics of approximately 30 times the frequency of the acoustical harmonics generated by the vocal cords, but which may nevertheless be amplitude modulated to produce non-audible speech by the speaker's silently mouthing of words. The ultrasonic speech is then received by an ultrasonic transducer disposed outside of the speaker's mouth and electronically communicated to a translation device which down converts the ultrasonic signals to corresponding signals in the audible frequency range and synthesizes the signals into artificial speech.

**USP # 5,539,705 (July 23, 1996)**

**Ultrasonic Speech Translator and Communication System**

**M. A. Akerman, M., et al.**

**Abstract** --- A wireless communication system, undetectable by radio-frequency methods, for converting audio signals, including human voice, to electronic signals in the ultrasonic frequency range, transmitting the ultrasonic signal by way of acoustic pressure waves across a carrier medium, including gases, liquids and solids, and reconvertng the ultrasonic acoustic pressure waves back to the original audio signal. This invention was made with government support under Contract DE-AC05-84OR21400, awarded by the US Department of Energy to Martin Marietta Energy Systems, Inc.

**USP # 5,507,291 (April 16, 1996)**

**Method & Apparatus for Remotely Determining Information as to Person's Emotional State ~**

**Stirbl, et al.**

**Abstract** --- In a method for remotely determining information relating to a person's emotional state, an waveform energy having a predetermined frequency and a predetermined intensity is generated and wirelessly transmitted towards a remotely located subject. Waveform energy emitted from the subject is detected and automatically analyzed to derive information relating to the individual's emotional state. Physiological or physical parameters of blood pressure, pulse rate, pupil size, respiration rate and perspiration level are measured and compared with reference values to provide information utilizable in evaluating interviewee's responses or possibly criminal intent in security sensitive areas.

**USP # 4,315,501 (February 16, 1982)**

**Learning-Relaxation Device**

**Gorges, Denis E.**

**Abstract** --- Disclosed is a device for relaxing, stimulating and/or driving brain wave form function in a human subject. The device comprises, in one embodiment, an eye mask having independently controlled left and right eyepieces and a principal light array in each eyepiece, an audio headset having independently controlled left and right earpieces and a control panel which controls light and sound signals to the light arrays and earpieces, respectively. Various control functions allow simultaneous or alternating light and sound pulsations in the left and right light arrays and earpieces, as well as selective phasing between light and sound pulsations.

**USP # 4,227,516 (October 14, 1978)**

**Apparatus for Electrophysiological Stimulation**

**Meland, Bruce C., et al.**

**Abstract** --- Apparatus for the electrophysiological stimulation of a patient is provided for creating an analgesic condition in the patient to induce sleep, treat psychosomatic disorders, and to aid in the induction of electrohypnosis and altered states of consciousness. The foregoing is achieved by repetitive stimulation of the patient for whom external influences, namely those of light and sound, are intentionally excluded. The apparatus produces electrical stimulation for the patient in the form of a modulated wave which produces impulses in the delta, theta, alpha and beta regions of the brain's electrical activity, the electrical stimulation being accompanied by two sources of audio stimulation, one of which is a sinusoidal tone modulated by and synchronized with the electrical stimulation, and the other is derived from sound recordings.

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to change  
subliminal  
audio  
stimulation

patented

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USP # 4,692,118 (September 8, 1987)

**Video Subconscious Display Attachment**  
Mould, Richard E.

**Abstract** --- An apparatus and method for introducing messages to the subconscious mind is disclosed, which includes a panel positioned adjacent a television screen, with the panel having non-distractive messages imprinted thereon, such that as the subject consciously focuses his attention on the video screen, his subconscious mind records the message from the panel that is within his peripheral vision.

subliminal  
method of  
education

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