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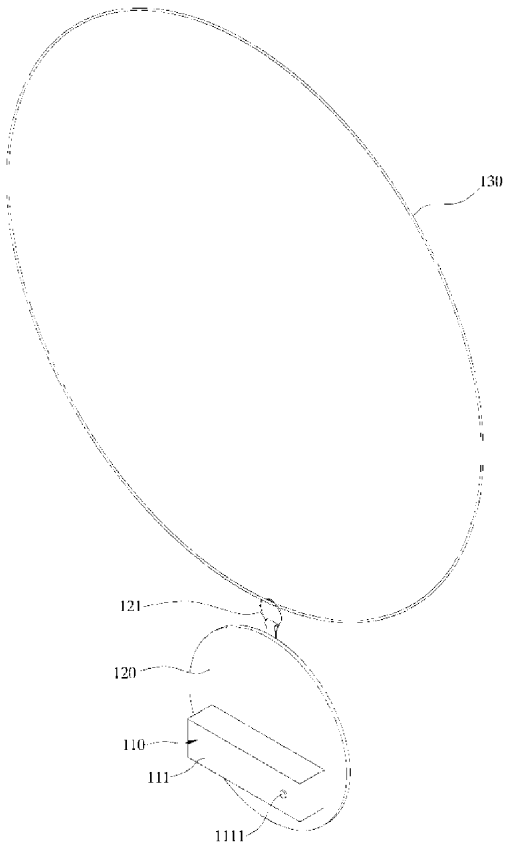
(54) WAVE PROVIDING ACCESSORY USING SAWTOOTH WAVEFORM

(57) A wave providing accessory using a sawtooth waveform is disclosed. The wave providing accessory using a sawtooth waveform comprises: a stimulus generator for generating a micro current having a wavelength of a sawtooth wave; a first decoration member which is provided in the form of a metal plate or housing, has one surface to which the stimulus generator is fixed, is electrically connected to the stimulus generator so that the micro current generated by the stimulus generator is applied thereto, and has a decorative pattern engraved on one surface of the plate or an outer surface of the housing; and a wearable member which is provided in the form of a metal ring that is wearable on one of a wrist, a neck , and an ankle, is connected to the decoration member to allow the micro current applied to the decoration member to be also applied thereto, and transfers the applied micro current to a human body along with the decoration member.

FIG. 1



EP 3 603 439 A1

Description

[Technical Field]

[0001] The present invention relates to an accessory, more particularly, to a wave-providing accessory using a sawtooth (or "serrated") waveform with health improvement effects.

[Background Art]

[0002] In recent years, with increase in standard of living, interest in health is gradually increasing. Further, there has been much more concern about the health due to occurrence of various adult (or lifestyle) diseases caused by a change in food culture and lack of exercise, and therefore, various kinds of cosmetic devices with different functions have been developed and are widely used. An electrotherapy device is also one of such devices.

[0003] Electrotherapy may refer to diagnosis and treatment of disease using electricity such as direct current, alternating current, pulse current, etc.

[0004] Such electrotherapy may include, for example, medical galvanism therapy, iontophoresis, electrical stimulation therapy (EST), transcutaneous electrical nerve stimulation (TENS), functional electrical stimulation (FES), interferential current therapy (ICT), shortwave diathermy (SWD), microwave diathermy (MWD), ultrasound therapy, etc.

[0005] Electrotherapy has been used for therapeutic purposes of diseases, such as musculoskeletal injuries and disorders, neurological damage and disorders, circulatory diseases, skin diseases, internal medical diseases, chronic inflammatory diseases, etc.

[0006] The most beneficial advantage of a therapeutic method using electronic energy is known as a therapy utilizing conditions and characteristics of a human body to generate an electrical change in the body by external electrical stimulation, so as to beneficially use the electrical change in treatment.

[0007] However, electrotherapy has considerable differences in functions thereof depending upon waveform of frequency, electric current, current intensity, application site, etc. In particular, a structure, size or material of a plate to be applied to the body, application time and/or a combination with an electric conductive fluid or relevant antibiotics may also induce different reactions.

[0008] Capacitive and resistive electric transfer therapies may produce diverse physiological effects. That is, increasing an internal temperature may simultaneously lead to vasodilation able to maintain biological phenomena associated with vitality of biological tissues, which in turn, increases blood circulation, and may also improve supply of nutrients and oxygen and stimulate cellular respiration and excretion of toxic degradation products such as "catabolin".

[0009] The conventional electrotherapy device is an output device for applying electric stimulus to specific sites of the body, such as the lower back, abdomen, legs, shoulder, sole of a foot, etc., which is used by adhering a positive (+) electrode pad and a negative (-) electrode pad to the specific site, wherein a regular low frequency signal having the same frequency characteristics is supplied to the electrode pad adhered to the body, thereby transferring electric stimulus to the body.

[0010] However, since the low frequency current is transferred only through a patch type electrode pad directly attached to an affected site of a subject to be treated, a range of the electric stimulus transfer is narrow and not sufficient to achieve therapeutic effects and massage effects through electrical stimulation. Further, the electric stimulus passing through the electrode pad is somewhat strongly transferred to the subject, hence entailing a problem of directly transferring physical stimulation to the subject.

[0011] Further, the conventional electrotherapy device is not easy to carry.

[0012] Meanwhile, a product with health improvement effects through magnetic force by embedding permanent magnets of thousands of gauss in an ornament, as well as a product manufactured by coating an accessory with a far-infrared light emitting ceramic through ceramic coating to facilitate metabolism, thereby promoting blood circulation and improving vitality while removing waste matter from the body, or the like, have been available in the art. However, such products are too expensive as compared with efficacy thereof.

[0013] For the permanent magnet, there has been introduced a schematic theory wherein, when the blood flowing throughout the body every ten seconds is irradiated with magnetic lines of force, anions in the blood are increased, thus influencing the autonomic nerve system, resulting in promotion of endocrine secretion and blood circulation to thus improve a disease. It is presumed that the schematic theory supports the treatment effects described above.

[0014] However, for the permanent magnet, if the magnetic force or magnetic polarity does not match the body or magnetic properties are used indiscreetly, it may rather disturb a magnetic field of the body and cause a problem of interfering with human health.

[Disclosure]

[Technical Problem]

[0015] Accordingly, an object of the present invention is to provide a wave-providing accessory using a sawtooth waveform, which may exert therapeutic effects such as body massage, blood circulation improvement, stress relief, etc., and health improvement effects, with minimum electrical stimulation by transmitting microcurrent to the body.

[0016] Another object of the present invention is to provide a wave-providing accessory using a sawtooth wave-

form, which may exert decorative effects, health improvement effects and therapeutic effects while being easily wearable on a part of the body, wherein a minimum current amount at 45 kHz frequency is used to minimize a size of a stimulus generator so that such miniaturized stimulus generator can be mounted on a small accessory.

[Technical Solution]

[0017] In order to accomplish the above objects, the wave-providing accessory using a sawtooth waveform according to one embodiment of the present invention may include: a stimulus generator for generating microcurrent having a wavelength of a sawtooth wave; a first decorative member that is provided in the form of a metal plate or housing, has one surface to which the stimulus generator is fixed, is electrically connected to the stimulus generator so that the microcurrent generated by the stimulus generator is applied thereto, and has a decorative pattern engraved on one surface of the plate or an outer surface of the housing; and a wearable member provided in the form of a metal ring that is wearable on any one of a wrist, a neck and an ankle, is connected to the decorative member such that the microcurrent, which was applied to the decorative member, is further applied to the wearable member, while transferring the applied microcurrent to a human body along with the decorative member.

[0018] The wave-providing accessory using a sawtooth waveform according to another embodiment of the present invention may include: a fiber ring which consists of electric conductive fibers ("conductive fibers"), and is provided in a wearable ring shape on any one of the wrist, neck and ankle by processing the conductive fibers and connected at one side of the first decorative member, and to which the microcurrent applied from the stimulus generator to the first decorative member is applied; a second decorative member which surrounds the fiber ring, consists of a non-conductive resin material, and is coated with a fluorescent material on a surface thereof; and a plurality of current transfer members, each of which has a column shape, faces the fiber ring at one end of the column while another end passes through the second decorative member, thus being exposed to the outside of the second decorative member, and transmits additional microcurrent to the human body through the exposed end.

[0019] The fluorescent material may be applied to the surface of the second decorative member so as to form a predetermined pattern on an outer surface of the second decorative member.

[Advantageous effects]

[0020] The wave-providing accessory using a sawtooth waveform according to the present invention may have advantages of accomplishing therapeutic effects such as massage, blood circulation improvement, stress relief, etc., as well as health improvement effects, with minimum electrical stimulation only by transferring microcurrent to the human body.

[0021] Further, since a minimum amount of current at 45 kHz is used to thus minimize an amount of current to be used, a size of the stimulus generator may be minimized, and therefore, the minimized stimulus generator can be mounted on a small accessory and be easily wearable on a portion of the human body while walking around, thereby achieving advantages of decorative effects, health improvement and therapeutic effects.

[Description of Drawings]

[0022]

FIG. 1 is a perspective view illustrating the configuration of a wave-providing accessory using a sawtooth waveform according to one embodiment of the present invention.

FIG. 2 is a block diagram explaining the stimulus generator shown in FIG. 1.

FIG. 3 is a perspective view illustrating the configuration of a wave-providing accessory using a sawtooth waveform according to another embodiment of the present invention.

[Best Mode]

[0023] Hereinafter, the wave-providing accessory using a sawtooth waveform according to the embodiments of the present invention will be described with reference to the accompanying drawings. Since the present invention may include various alterations and modifications, specific embodiments will be illustrated in the drawings and described in detail in the specification. However, this is not intended to restrict the present invention to the specific embodiments and should be construed to encompass all modifications, equivalents and substitutes within the scope and technical range of the present invention. In the explanation of the drawings, similar numerals have been used for similar components. Referring to the drawings, a dimension of each structure was exaggerated for clarity of the present invention.

[0024] First, second, etc. in the terms may be used for describing multiple components, however, these components should not be restricted to the above terms. These terms are only used to distinguish one component from another. For example, without departing from the scope of the present invention, the first component may be referred to as a second component and, likewise, the second component may also be referred to as the first component.

[0025] The terms in the present specification are merely used to describe specific embodiments and are not intended to restrict the present invention. Expression in a singular form may also include a plural form unless the

context clearly otherwise indicates. In the present specification, the terms "include", "have", etc. are to specify features, numbers, stages, operations, components, parts or combinations thereof described in the specification and should be understood not to exclude possibility of the presence or addition of one or more other features, numbers, stages, operations, components, parts or combinations thereof.

[0026] Unless otherwise defined, all terms including technical and/or scientific terms used herein have the same meanings as commonly understood by one having ordinary skill in the art ("those skilled in the art"). Terms defined in a general dictionary should be construed to have the same meanings in the context of relevant art and, unless clearly defined in the present application, should not be interpreted to have idealistic or excessively formalistic meanings.

[0027] FIG. 1 is a perspective view illustrating the configuration of a wave-providing accessory using a sawtooth waveform according to one embodiment of the present invention; and FIG. 2 is a block diagram explaining the stimulus generator shown in FIG. 1.

[0028] Referring to FIGS. 1 and 2, the wave-providing accessory using a sawtooth waveform according to one embodiment of the present invention may include a stimulus generator 110, a first decorative member 120 and a wearable member 130.

[0029] The stimulus generator 110 may output a current with a fine wavelength of a sawtooth wave. For example, the stimulus generator 110 may include a case 111 provided with a power switch 1111, a control module 112 and a battery 113.

[0030] The case 111 may be provided in a predetermined shape. For example, the case 111 may have a rectangular parallelepiped ("cuboid") shape. The power switch 1111 may be provided outside the case 111. The power switch 1111 may be electrically connected to the control module 112.

[0031] The control module 112 may generate a wavelength of sawtooth wave. For instance, the control module 112 may include a sawtooth wave generator 1121 and a control unit 1122. The sawtooth wave generator 1121 may be configured to generate a frequency wherein an output waveform of the frequency is a sawtooth wave. The control unit 1122 may control the sawtooth wave generator 1121. That is, the control unit 1122 may transfer power to the sawtooth generator 1121 when the power is supplied from the battery 113, and may control the sawtooth wave generator 1121 to generate a frequency in a sawtooth wave-like output waveform (that is, "sawtooth waveform").

[0032] The battery 113 may be provided in the case 111, electrically connected to the control module 112 to thus supply power to the control module 112 when the power switch 1111 is set to ON.

[0033] The first decorative member 120 may be provided in the form of a metal plate or housing. For example, the first decorative member 120 may be provided in a plate form set with gold or silver. The plate may be formed in various shapes for decoration, a surface of which may be partially engraved with a decorative pattern.

[0034] The stimulus generator 110 is fixed on one surface of the first decorative member 120 wherein the first decorative member 120 is electrically connected to the stimulus generator 110, and microcurrent having a wavelength of sawtooth wave generated in the stimulus generator 110 is applied thereto.

[0035] Herein, an electrical connection mode of the first decorative member 120 and the stimulus generator 110 is not particularly limited. For example, in order to electrically connect the first decorative member 120 and the stimulus generator 110 through a contact face with each other, the stimulus generator 110 may be fixed to the first decorative member 120 such that a connection terminal (not shown) protrudes from one side of the case 111 of the stimulus generator 110 and is in contact with one surface of the first decorative member 100.

[0036] The wearable member 130 may be provided to wear the first decorative member 120 on a portion of the body of a user. The wearable member 130 may be provided in a metal ring form wearable on any one of a wrist, neck or ankle. For instance, the wearable member 130 may be provided in a size possibly worn around the neck of a user. The wearable member 130 may be connected to the first decorative member 120 such that microcurrent applied to the first decorative member 120 can also be applied to the wearable member 130. For example, the wearable member 130 may be connected to the decorative member 120 via a metal link 121 disposed on a top end.

[0037] Hereinafter, use and operation of the wave-providing accessory using a sawtooth waveform according to one embodiment of the present invention will be described in detail.

[0038] The user can wear the wave-providing accessory using a sawtooth waveform via the wearable member 130 according to one embodiment of the present invention around the neck.

[0039] While wearing the accessory on the neck, the user may operate the stimulus generator 110. That is, the user may activate the stimulus generator 110 by turning ON the power switch 1111. When the stimulus generator 110 starts to act, the control unit 1122 may transfer power to the sawtooth wave generator 1121 and control the same so that the sawtooth wave generator 1121 generates a frequency wherein the generated frequency has an output waveform of a sawtooth wave, thereby outputting the sawtooth wave.

[0040] The output waveform of the sawtooth wave may be applied to the first decorative member 120 and thus the first decorative member 120 may output microcurrent. Further, the microcurrent applied to the first decorative member 120 may be transmitted to the wearable member 130, and therefore, the microcurrent may also be applied to the wearable member 130. The microcurrent applied to both the decorative member 120 and the wearable

member 130 may be transferred to a body of the user, that is, the upper body of the user.

[0041] The wave-providing accessory using a sawtooth waveform according to one embodiment of the present invention may produce the output sawtooth waveform through the stimulus generator 110 and thus use a minimum current amount at 45 kHz. Accordingly, ultrafine-current may be transferred to the human body so as to achieve an advantage of exerting therapeutic effects such as massage, blood circulation improvement, stress relief, etc., as well as health improvement effects, with only minimum electrical stimulation.

[0042] Further, since the minimum current amount at 45 kHz is used, an amount of current to be used may be minimized to thus considerably reduce a size of the stimulus generator 110. Consequently, it is possible to miniaturize the stimulus generator 110 such that the stimulus generator can be mounted on a small accessory and easily worn on a portion of the body of the user, thereby achieving an advantage of exerting decorative effects, health improvement and therapeutic effects while walking around.

[0043] FIG. 3 is a perspective view illustrating the wave-providing accessory using a sawtooth waveform according to another embodiment of the present invention.

[0044] Referring to FIG. 3, the wave-providing accessory using a sawtooth waveform according to another embodiment of the present invention may include a stimulus generator 210, a first decorative member 220, a wearable member 230, a fiber ring 240, a second decorative member 250, and a plurality of current transfer members 260.

[0045] The stimulus generator 210, the first decorative member 220 and the wearable member 230 are substantially identical to the stimulus generator 110, the first decorative member 120 and the wearable member 130, respectively, which are installed in the wave-providing accessory using a sawtooth waveform according to one embodiment of the present invention described with reference to FIG. 1, and a detailed description thereof will be omitted.

[0046] The fiber ring 240 may be provided in a wearable ring form on any one of a wrist, neck or ankle and connected to one side of the first decorative member 220. For example, the fiber ring 240 may be connected to the first decorative member 220 by coupling the same in a link 221 disposed on a top end of the first decorative member 220. Such a fiber ring 240 consists of conductive fibers, and the microcurrent applied from the stimulus generator 210 to the first decorative member 220 may also applied thereto.

[0047] Herein, the conductive fiber may include a combined yearn fabricated by mixing an electrically conductive yarn with a fiber thread wherein the electrically conductive yarn is configured using fine yarns made of a material having excellent conductivity such as copper or platinum. Otherwise, the conductive fiber may be manufactured by ionic bonding of copper and acryl.

[0048] The second decorative member 250 may wrap the fiber ring 240 and consist of a non-conductive resin material. For example, a silicon material may be used. The second decorative member 250 may be coated with a fluorescent material on the surface thereof in order to exert additional decorative effects along with the first decorative member 220. The fluorescent material used herein may be applied to the surface of the second decorative member 250 so as to form a predetermined pattern on an outer surface of the second decorative member 250. For example, the fluorescent material may be applied in a heart form.

[0049] The plurality of current transfer members 260 may output the microcurrent applied to the conductive fibers in the fiber ring 240 to the outside of the second decorative member 250. Each current transfer member 260 may be provided in a column shape wherein one end of the column faces the fiber ring 240 so that the microcurrent applied to the conductive fibers can be further applied thereto, while the other end passes through the second decorative member 250 and is exposed to the outside of the second decorative member 250. The plurality of current transfer members 260 may be arranged at a predetermined interval in a circumferential direction of the fiber ring 240 and the second decorative member 250.

[0050] Hereinafter, use and operation of the wave-providing accessory using a sawtooth waveform according to another embodiment of the present invention will be described in detail.

[0051] The user can wear the wave-providing accessory using a sawtooth waveform via the second decorative member 250 wrapping the fiber ring 240 as well as the wearable member 230 according to another embodiment of the present invention around the neck. Herein, the plurality of current transfer members 260 passing through the second decorative member 250 and being exposed to the outside of the second decorative member 250 may be in contact with the skin around the wearer's neck.

[0052] While wearing the accessory on the neck, the user may operate the stimulus generator 210. A process of activating the stimulus generator 210 and outputting microcurrent is substantially identical with the process of outputting the microcurrent by the stimulus generator 110 described in the previous embodiment of the present invention, and a detailed description thereof will be omitted.

[0053] The output sawtooth waveform ("sawtooth waveform") output from the stimulus generator 210 is applied to the first decorative member 220 and thus the first decorative member 220 may output microcurrent. Further, the microcurrent applied to the first decorative member 220 may also be applied to the wearable member 230 and the fiber ring 240. The microcurrent applied to the fiber ring 240 may be further applied to each of the plurality of current transfer members 260, which face and are connected to the fiber ring 240. Accordingly, the first

decorative member 220, the wearable member 230 and the plurality of current transfer members 260 may transfer the microcurrent to a body of the user, that is, an upper body of the user.

[0054] Meanwhile, the fluorescent material applied to the surface of the second decorative member 250 in a predetermined shape is elegant due to the shape thereof by day, while emitting light at the night to make the second decorative member 250 more elegant.

[0055] As such, the wave-providing accessory using a sawtooth waveform according to another embodiment of the present invention may have more elegant appearance thanks to the second decorative member 250 coated with a fluorescent material in a predetermined pattern. Further, due to the plurality of current transfer members 260, additional microcurrent may be transferred to the body, thereby achieving an advantage of improving massage effects and therapeutic effects.

[0056] FIGS. 4 and 5 illustrate one embodiment of the wave-providing accessory using a sawtooth waveform according to the present invention.

[0057] As shown in FIG. 4, the stimulus generator 110 may be configured to be directly connected to a chain of a metal-based necklace. Alternatively, as shown in FIG. 5, the stimulus generator 110 may be configured to be directly connected to a wrist strap of a metal-based watch.

[0058] On the other hand, the wave-providing accessory using a sawtooth waveform according to the embodiments of the present invention may be coated with a fragrant material having medical functions such as respiratory disease treatment, thereby exhibiting fatigue recovery and/or health improvement effects of the user.

[0059] The fragrant material may be mixed with a functional oil in a mixing ratio of 95 - 97% by weight ('wt.%') of fragrant material to 3 - 5 wt.% of functional oil, wherein the functional oil comprises 50 wt.% of Helichrysum oil and 50 wt.% of Patchouli oil.

[0060] In this regard, the functional oil is preferably mixed in an amount of 3 to 5 wt.% to the fragrant material. If a mixing ratio of the functional oil is less than 3 wt.%, effects thereof may be insignificant. On the other hand, if a mixing ratio of the functional oil exceeds the range of 3 to 5 wt.%, manufacturing cost may be considerably increased without significant improvement in functions thereof.

[0061] Among the functional oil, Helichrysum oil may contain nerol, geraniol, linalol, etc. as main chemical ingredients which are beneficial for anti-microbial, anti-bacterial, anti-septic, anti-allergic and/or anti-inflammatory effects.

[0062] Patchouli oil may contain patchoulene, eugenol, carvone, etc. as main chemical ingredients which are excellent for sterilization, anti-septic, anti-congestive and/or skin inflammation treatment effects.

[0063] Since such a functional oil as described above is applied to the wearable member 130 or 230, the wave-providing accessory using a sawtooth waveform of the present invention may contribute to fatigue recovery and/or health improvement of the user.

[0064] Further, in order to efficiently prevent adhesion of contaminants or remove the same, a coating layer formed by applying a coating composition for preventing pollution to a layer may be provided on an outer surface of the case of the stimulus generator 110 or 210 in the wave-providing accessory using a sawtooth waveform according to the embodiments of the present invention. The coating composition for preventing pollution may include hydrogen peroxide and sodium metasilicate in a molar ratio of 1:0.01 to 1:2, wherein a total content of hydrogen peroxide and sodium metasilicate ranges from 1 to 10 wt.% of a total solution. In addition, in order to enhance a coating property of the coating layer, sodium metasilicate or calcium carbonate may be used, and sodium metasilicate is preferably used. The hydrogen peroxide and sodium metasilicate are preferably included in a molar ratio of 1:0.01 to 1:2. If the molar ratio is beyond the above range, substrate coating effects may be reduced or water absorption of the surface after coating may be increased, hence causing exfoliation of a coating film.

[0065] An amount of hydrogen peroxide and sodium metasilicate preferably rages from 1 to 10 wt% of a total composition solution. If the amount is less than 1 wt.%, substrate coating effects may be reduced. On the other hand, when this amount exceeds 10 wt.%, crystallization due to increase in a thickness of the coating film may be liable to occur.

[0066] Application of the coating composition for preventing pollution to a substrate is preferably performed by a spraying process. Further, a thickness of a final coating film on the substrate may range from 500 to 2000 Å, more preferably, 1000 to 2000 Å. If the thickness is less than 500 Å, there is a problem of deterioration in case of high temperature heat treatment. On the other hand, if the thickness exceeds 2000 Å, there is a drawback that crystallization is liable to occur on the coating surface.

[0067] Further, the coating composition for preventing pollution may be prepared by adding 0.1 mole of hydrogen peroxide and 0.05 mole of sodium metasilicate to 1000 ml of distilled water and stirring the same.

[0068] Meanwhile, the control module 112 in the wave-providing accessory using a sawtooth waveform according to the embodiments of the present invention may be further coated with a color change part wherein the color change part shows a change in color depending on temperature. For example, the substrate used for fabricating the control module 112 may be coated with the color change part. The color change part may be formed by applying two or more temperature-dependent color changeable materials, which show a change in color at a predetermined temperature or higher, to the control module 112, wherein the color change part is separated into two or more sections in response to temperature changes, thereby enabling determination of stepwise change in temperature. Further, in order to prevent the

color change part from being damaged, a protective film may be applied to the color change part.

[0069] Herein, the color change part may be formed by applying at least two temperature-dependent color changeable materials ("color changeable material") having a color change temperature of more than 40 °C and more than 60 °C, respectively, to the control module. The color change part may be provided to show a change in color depending upon a temperature of the control module 112, so as to sense a change in temperature of paint.

[0070] The color changeable material may be configured in a micro-capsule structure of 1 to 10 μm, wherein color and transparent color may be expressed due to combination and segregation between an electron donor and an electron acceptor in the micro-capsule.

[0071] Further, the color changeable material may show quick change in color, have different color change temperatures such as 40 °C, 60 °C, 70 °C, 80 °C, etc., and such color change temperature is easily adjustable in various ways. The color changeable material may include different kinds of color changeable materials based on principles of molecular rearrangement of an organic compound, spatial rearrangement of atomic groups, etc.

[0072] For these purposes, the color change part is preferably formed by applying two or more color changeable materials having different color change temperatures to the control module in order to separate the color change part into two or more sections depending upon change in temperature. The color change part composed of a color change layer may be formed using different color changeable materials having a relatively low color change temperature and a relatively high color change temperature, respectively. More preferably, the color changeable materials having color change temperatures of more than 40 °C and more than 60 °C, respectively, are used to form the color change part.

[0073] Accordingly, a change in temperature of the control module 112 may be determined in a stepwise manner to thus sense a change in temperature of the paint. Therefore, the control module 112 may be operated in an optimum state, and damage of the control module 112 due to overheating may be prevented beforehand.

[0074] Further, the protective layer may be applied to a top surface of the color change part in order to prevent the color change part from being damaged, and whether the color change part has been discolored may be easily determined. Further, considering that the temperature-dependent color changeable material is weak to heat, a transparent coating material with heat insulation properties is preferably used.

[0075] Description of the above disclosed embodiments is provided to utilize or implement the present invention by those skilled in the art, to which the present invention pertains. It will be apparent to those skilled in the art that various modifications to these embodiments are possible. Typical principles defined herein may also be applied to other embodiments without departing from the scope of the present invention. Accordingly, the present invention is not particularly restricted to the proposed embodiments herein but should be interpreted within the widest scope consistent with the principles and novel features disclosed herein.

Claims

1. A wave-providing accessory using a sawtooth waveform, comprising:

   a stimulus generator (110, 210) for generating microcurrent having a wavelength of a sawtooth wave;
   a first decorative member (120, 220) that is provided in the form of a metal plate or housing, has one surface to which the stimulus generator (110, 210) is fixed, is electrically connected to the stimulus generator (110, 210) so that the microcurrent generated by the stimulus generator (110, 210) is applied thereto, and has a decorative pattern engraved on one surface of the plate or an outer surface of the housing; and
   a wearable member (130, 230) provided in the form of a metal ring that is wearable on any one of a wrist, a neck and an ankle, is connected to the decorative member (120, 220) such that the microcurrent, which was applied to the decorative member, is further applied to the wearable member, while transferring the applied microcurrent to a human body along with the decorative member (120, 220).

2. The accessory according to claim 1, further comprising:

   a fiber ring (240) which consists of electric conductive fibers ("conductive fibers"), and is provided in a wearable ring shape on any one of the wrist, neck and ankle by processing the conductive fibers and connected at one side of the first decorative member (220), and to which the microcurrent applied from the stimulus generator (210) to the first decorative member (220) is applied;
   a second decorative member (250) which wraps the fiber ring (240), consists of a non-conductive resin material, and is coated with a fluorescent material on a surface thereof; and
   a plurality of current transfer members (260), each of which has a column shape, faces the fiber ring (240) at one end of the column while another end passes through the second decorative member (250), thus being exposed to the outside of the second decorative member (250), and transfers additional microcurrent to the human body through the exposed end.

3. The accessory according to claim 2, wherein the fluorescent material is applied to the surface of the second decorative member (250) so as to form a predetermined pattern on an outer surface of the second decorative member (250) .

FIG. 1

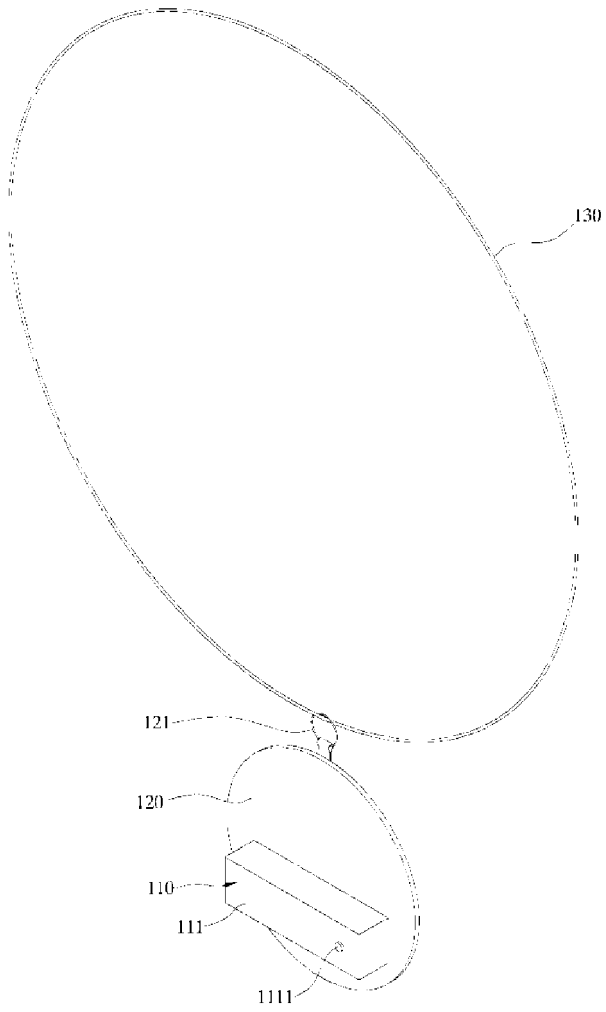

130
121
120
110
111
1111

FIG. 2

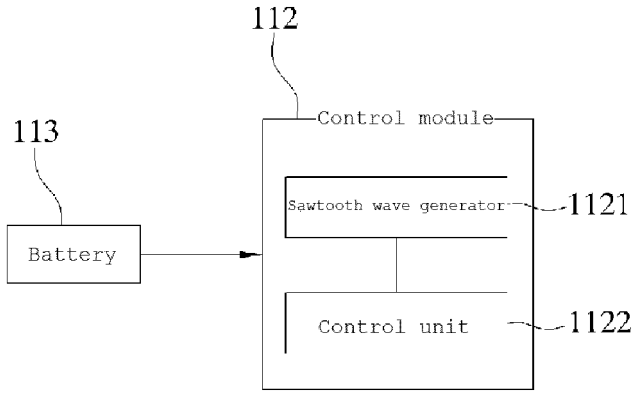

112
Control module
113
Battery
Sawtooth wave generator
1121
Control unit
1122

FIG. 3

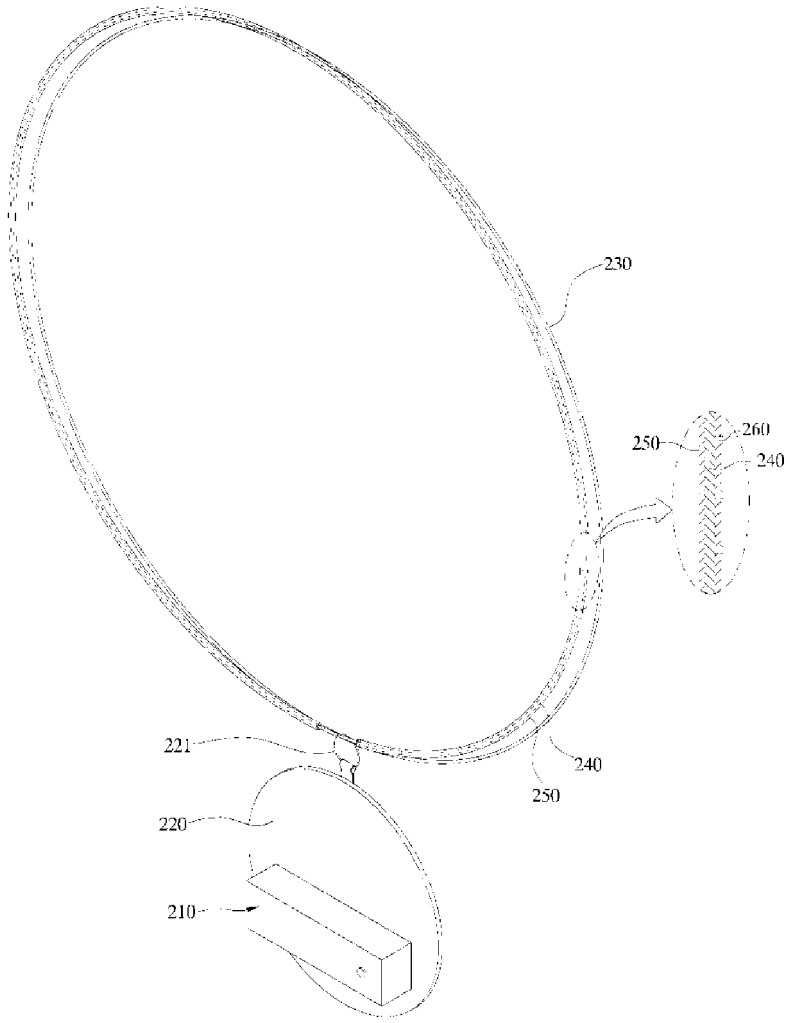


FIG. 4

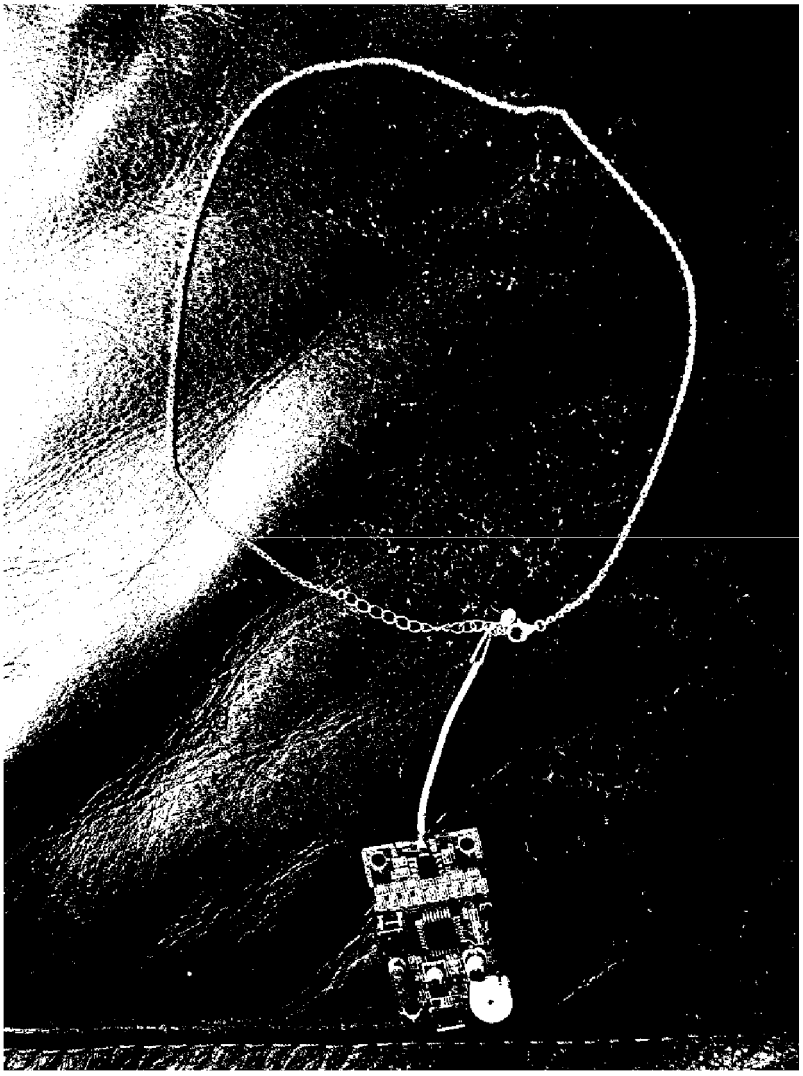
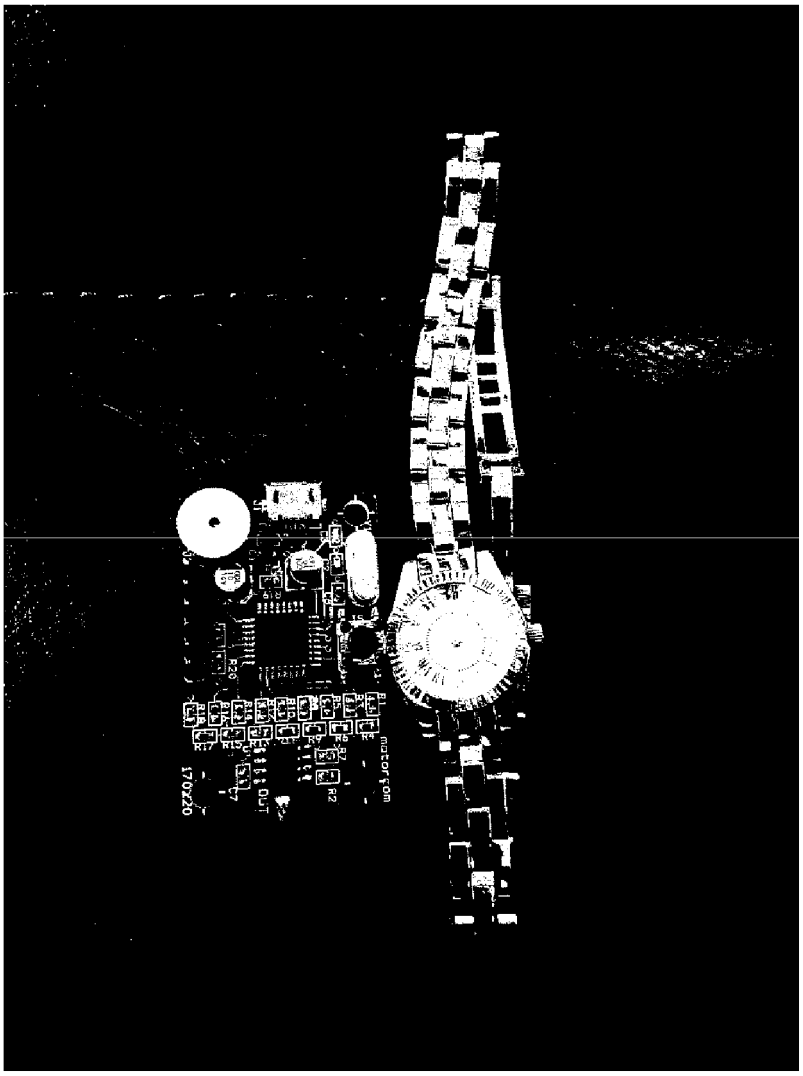


FIG. 5



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2017/012553

A. CLASSIFICATION OF SUBJECT MATTER

A44C 5/00(2006.01)i, A44C 15/00(2006.01)i, A44C 25/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A44C 5/00; A61N 1/18; A61N 1/36; A61N 1/02; A61N 1/04; A44C 27/00; A44C 15/00; A44C 25/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Utility models and applications for Utility models: IPC as above
Japanese Utility models and applications for Utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO internal) & Keywords: accessory, micro-current, sawtooth wave, fiber ring, fluorescent material

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 10-0547474 B1 (DAEKYOUNG SOLAR CO., LTD.) 31 January 2006 See claim 5; and figures 1-2.	1
Y		2,3
Y	JP 3202930 U (INOUE:KK.) 03 March 2016 See abstract; paragraph [0019]; and figures 1-2, 5.	2,3
A	KR 10-1669861 B1 (LEE, Beum Sun et al.) 27 October 2016 See the entire document.	1-3
A	KR 10-2013-0073387 A (PARK, Cheon Jung) 03 July 2013 See the entire document.	1-3
A	KR 20-0225747 Y1 (KIM, Su Chul) 01 June 2001 See the entire document.	1-3

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
07 MARCH 2018 (07.03.2018)	07 MARCH 2018 (07.03.2018)
Name and mailing address of the ISA/KR Korean Intellectual Property Office Government Complex-Daejeon, 189 Seonsa-ro, Daejeon 302-701, Republic of Korea Facsimile No. +82-42-481-8578	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR2017/012553

Patent document cited in search report	Publication date	Patent family member	Publication date
KR 10-0547474 B1	31/01/2006	KR 10-2005-0030450 A	30/03/2005
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