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(54) **ELECTRONIC DEVICE FOR REFLEXOTHERAPY**

ELEKTRONISCHES GERÄT FÜR REFLEXOTHERAPIE

APPAREIL ELECTRONIQUE POUR REFLEXOTHERAPIE

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Description

[0001] The subject of the present invention is to provide an electronic reflexotherapy device which can be used in searching for acupuncture points and influence thereon.

[0002] The ancient acupuncture was a stimulus to understanding of many unknown processes occuring in the human diseased and healthy organism.

[0003] The achievements in the fields of high technology and new acupuncture methods, such as electro-acupuncture, iasero-acupuncture, magneto-acupuncture and phono-acupuncture, allowed the creation of various medical devices.

[0004] For some time electronic acupuncture devices are being used, one of which (cf. DE Pat. Appl. Nr. 3.631.600, A61H 39/00, 1988) comprises a compact body with an energy source and an electronic unit inside. There is a press-button for starting stimulation and a step-by-step switch for changing the intensity of the current. Disposed at the working end of the body is a stimulating tip made of metal in the shape of a rod. The device has a graduated sensibility regulator.

[0005] The main disadvantage of the known device is the shape of the stimulating tip which is pointed towards its working end. This increases the risk of skin injury during indication of acupuncture points thereon. Moreover, as already known, the provision of various electric switches and regulators increases the searching time for acupuncture points and the probabilitiy of failures of the device.

[0006] An electronic reflexotherapy device according to the preamble of claim 1 is known from DE-A-2 928 826. This device allows the search for biologically active points. The device has a body in which are housed an energy source, an electronic unit, an optical indicator and a stimulating tip made in the form of an annular cylindrical (passive) electrode in the centre of which an active electrode is arranged. The working end of the active electrode has a hemispherical shape. There is an insulating insert between the electrodes. The described electrodes represent a part of a trigger of the electronic unit.

[0007] However, the design of the stimulating tip does not allow to find the acupuncture points quickly and precisely. Moreover, the known device is not sufficiently reliable in its application and the handling of it is awkward because of the large number of electric switches and its bulkiness.

[0008] An object of this invention is to create a reliable and easy to handle device which can be used in an automatic operational mode and shortens the searching time for acupuncture points, marks the acupuncture points found, and reduces the traumatism of the skin.

[0009] Object of the invention is the provision of a decice for finding, marking, and acting upon acupuncture points.

[0010] The proposed electronic reflexotherapy device comprises a body with an energy source and an electronic unit inside, an optical indicator being placed under an insert of transparent material, a stimulating end-piece formed by a passive annular cylindrical electrode and an acicular active electrode with a hemispherical working end which is located in the centre of said passive electrode, with an insulating insert therebetween. These electrodes are connected with an optical indicator, able to be switched on upon detection of an acupuncture point, and with an electronic unit. The said stimulating end-piece is made on one end of said body. An insulating insert is located between the electrodes, forming an annular cylindrical cavity at the side of the working part of the acicular electrode. The annular cavity is provided to bring about a marking of an acupuncture point in the form of an imprint of the electrodes on the skin. It has a height of at least twice the diameter of the active electrode. The electrodes are a part of an electronic unit starter and are connected with an electronic unit in a standby operational mode and are able to connect the same to an energy source and transfer it into a searching mode upon contact with the skin, and to automatically switch the unit over into a mode of therapeutic influence when discovering an acupuncture point.

[0011] The upper part of the body of the electronic reflexotherapy device has an insert made of transparent material. The device can be provided with a sound signalling device located in the electronic unit.

[0012] The contact surface of the stimulating end-piece with the skin formed by the passive electrode's ring with the active electrode in the centre, having a working end in the form of a hemisphere, allows a fast moving the device over the skin in searching, marking, and stimulation of acupuncture points. Inasmuch as the acicular electrode is rounded off, the passive electrode has a base in the form of a ring, and the forces exerted on the skin are determined by the weight of the device (60-70g), the pressure on the skin surface is minimum and cannot hurt during the procedure, reducing the probability of skin injuries. The electronic starter of the electronic unit and the sound and light signalisation, starting automatically upon finding an acupuncture point, allows short-term treatments of the same.

[0013] In searching for acupuncture points and acting upon the same the passive and active electrode have, to some extent, to be impressed into the skin in the projection zone of the acupuncture point. Here, the height of the annular cavity restricts the depth of skin surface deformation. Since the working end of the active electrode is hemispherical with a diameter of 1.5 - 2.0 mm, which, as a rule, coincides with the dimensions of the projection zone of an acupuncture point onto the skin, an annular cavity having a height of at least twice the diameter of the active electrode allows an operational mode of elastic deformation of the skin which leaves a short-term imprint mark after lightly pressing the stimulating end-piece onto the skin.

[0014] Exactness of the localization and marking an acupuncture point is within the limits of the acicular electrode diametre (1.5 - 2.0 mm). These circumstances shorten the time of the acupuncture point searching and reduce the probability of skin injuries during the procedure.

[0015] The essence of the invention is illustrated by the accompanying drawings, in which:

Fig. 1 is a longitudinal section of an electronic reflexotherapy device, and

Fig. 2 is the circuit diagram of the same.

[0016] The electronic reflexotherapy device has a body 1 made in the form of an oblong cylinder in which an insert 2 made of a transparent material is disposed. A removable cap 3 is disposed at one end of this body 1, and at the other end of said a body 1 a stimulating end-piece 4 is disposed, which comprises a passive cylindrical annular electrode 5 and an acicular active electrode 6 located in the centre of the passive electrode 5. The working end of the acicular active electrode 6 is hemispherical. Located between electrodes 5 and 6 is an insulating insert 7. The electrodes 5 and 6 are electrically connected with an electronic unit 8 and an optical indicator 9, located within the body 1. An energy source 10 and a sound signalling device 11 are disposed in the body 1. Due to the removable cap 3 the energy source can be replaced. The insulating insert 7 is arranged so that an annular cylindrical cavity 12 is formed on the working part side of the active electrode 6. The height of this annular cavity 12 is at least twice the diameter of the active electrode 6.

[0017] The device is operated as follows:

[0018] In searching for acupuncture points or stimulating the same the end-piece is brought into contact with the skin with its contact surface formed by the annular passive electrode and the acicular active electrode. Doing this the device is held at a right angle relative to the skin surface.

[0019] Electrodes are connected electrically to the electronic unit, which at this time is in a standby operational mode.

[0020] When the active and the passive electrode are bridged by the skin the electronic starter of the electronic unit is triggered and connects the latter to the energy source and shifts the electronic unit into the search mode for acupuncture points.

[0021] By smoothly moving the stimulating end-piece over the skin surface the search for acupuncture points takes place. When the active electrode reaches the zone of an acupuncture point the optical indicator and the sound signalling device are activated automatically.

[0022] To mark a found acupuncture point it is sufficient to slightly depress the stimulating end-piece into the skin surface during the indication. This produces a mark of the electrodes in the form of a ring with a point in the centre, which lasts a short period of time (about 1 min).

[0023] At the moment of an indication that an acupuncture point has been found, the electronic unit shifts automatically into the operational mode of therapeutic treatment, the duration of which is determined for each acupuncture point according to the specific technique.

[0024] The appearance of the electronic reflexotherapy device is that of a pen. The body of the device, the cap and the stimulating end-piece are made of metal (for example of copper) with a nickel plating. The upper part of the body is made of pellucid plastic. The insulating insert disposed in the stimulating end-piece is made of dielectrical plastic, for example of ebonite. The energy source consists of hermetical disk-shaped zink-silver elements, for instance, CII-21 or their counterparts corresponding to the standard of the International Electrotechnical Commission SR-41. The optical indicator is made on the base of a light-emitting diode or light-emitting diode matrix. The sound signalling device is made on the base of piezoceramics.

[0025] The active acicular electrode and the passive annular cylindrical electrode are connected with the electronic unit which is made of discrete elements and integrated circuit chips.

[0026] The electronic unit is so designed that in the operational mode of searching for acupuncture points it consumes minimum energy from the energy source and that practically no energy is consumed when the device is stored. This allows to use the electronic reflexotherapy device for a long time without replacement of the power source.

[0027] The device of the invention can be used in searching acupuncture points on the human body and marking the same, and also to perform express diagnoses and therapeutic treatment by electro-acupuncture methods. The device can also be used for training reflexotherapeutists for a quick practical mastering different techniques including acupuncture.

Claims

1. An electronic reflexotherapy device comprising a body (1) housing an energy source (10), an electronic unit (8) and, beneath an insert (2) of transparent material in the upper part of said body, an optical indicator (9),
and a metal stimulating end-piece (4) disposed outside of said body, at its forward end, and formed by a passive annular cylindrical electrode (5) and, located in the centre of the same, an acicular active electrode (6) made with a working end in the form of a hemisphere with a dielectrically insulating insert (7) therebetween, said electrodes being connected with the optical indicator to be activated when discovering an acupuncture point,
characterized in that the insulating insert (7) is located between the electrodes forming an annu-

lar cylindrical cavity (12) at the working end side of the acicular electrode (6) for marking an acupuncture point on the skin in the form of an impression of the electrodes, the height of said annular cavity (12) being at least twice the diameter of the active electrode (6), wherein the electrodes are a part of an electronic unit starter and are connected with the electronic unit (8) enabling the same, upon contact with the skin, to be connected to the energy source (10) and to be shifted into a searching mode of operation and, upon discovery of an acupuncture point, to be shifted automatically into a mode of therapeutic treatment.

2. An electronic reflexotherapy device according to claim 1, **characterized in that** a sound signalling device (11) is provided, located in the electronic unit.

Patentansprüche

1. Elektronisches Gerät für die Reflexotherapie mit einem Gehäuse (1), in dem eine Energiequelle (10), eine elektronische Einheit (8) und, unter einem Einsatz (2) aus durchsichtigem Material im oberen Teil des Gehäuses, eine optische Anzeige (9) untergebracht sind,
und mit einem metallischen Stimulations-Endstück (4), das außerhalb des Gehäuses an dessen vorderem Ende angeordnet ist und gebildet ist von einer passiven ringförmigen Zylinderelektrode (5), einer in deren Zentrum gelegenen aktiven Nadelelektrode (6) mit einem halbkugeligen Arbeitsende und einem dielektrischen Isoliereinsatz (7) zwischen diesen, wobei diese Elektroden mit der optischen Anzeige zu deren Aktivierung bei Entdeckung eines Akupunkturpunktes verbunden sind,
dadurch gekennzeichnet, daß zur Markierung eines Akupunkturpunktes in Form eines Eindrucks der Elektroden auf der Haut der Isoliereinsatz (7) unter Bildung einer zylindrischen Ringaushöhlung (12) zwischen den Elektroden angeordnet ist, wobei die Höhe der Ringaushöhlung (12) wenigstens das Doppelte des Durchmessers der aktiven Elektrode (6) beträgt,
wobei die Elektroden Teil eines Elektronikeinheitsstarters und mit der Elektronikeinheit (8) verbunden sind, damit diese bei einer Hautberührung mit der Energiequelle (10) verbunden und in einen Such-Betriebszustand versetzt wird und, bei Entdeckung eines Akupunkturpunktes, automatisch in den Betriebszustand der therapeutischen Einwirkung versetzt wird.

2. Elektronisches Gerät für die Reflexotherapie nach Anspruch 1, **dadurch gekennzeichnet, daß** in der elektronischen Einheit ein akustischer Signalgeber (11) vorgesehen ist.

Revendications

1. Appareil électronique pour réflexothérapie comprenant un corps (1) dans lequel est logée une source d'énergie (10), un module électronique (8) et, sous un insert (2) en matière transparente dans la partie supérieure dudit corps, un indicateur optique (9), et un embout stimulateur en métal (4) placé à l'extérieur dudit corps, en son extrémité avant, et constitué d'une électrode cylindrique annulaire passive (5) et, au centre de celui-ci, une électrode active aciculaire (6) munie d'une extrémité de travail sous forme d'une hémisphère avec un insert diélectriquement isolant (7) entre eux, lesdites électrodes étant reliées à l'indicateur optique pour que celui-ci soit activé lorsqu'un point d'acupuncture est découvert, **caractérisé en ce que** l'insert isolant (7) est situé entre les électrodes formant une cavité cylindrique annulaire (12) du côté de l'extrémité de travail de l'électrode aciculaire (6) pour marquer un point d'acupuncture sur la peau sous la forme d'une impression des électrodes, la hauteur de ladite cavité annulaire (12) étant égale à au moins deux fois le diamètre de l'électrode active (6), dans lequel les électrodes font partie d'un dispositif de démarrage de module électronique et sont reliées au module électronique (8) pour permettre à ce dernier, lors du contact avec la peau, d'être connecté à la source d'énergie (10) et de passer dans un mode de fonctionnement de recherche et, lors de la découverte d'un point d'acupuncture, de passer automatiquement en un mode de traitement thérapeutique.

2. Appareil électronique pour réflexothérapie selon la revendication 1, **caractérisé en ce qu'**un dispositif de signalisation sonore (11) est prévu à l'intérieur du module électronique.

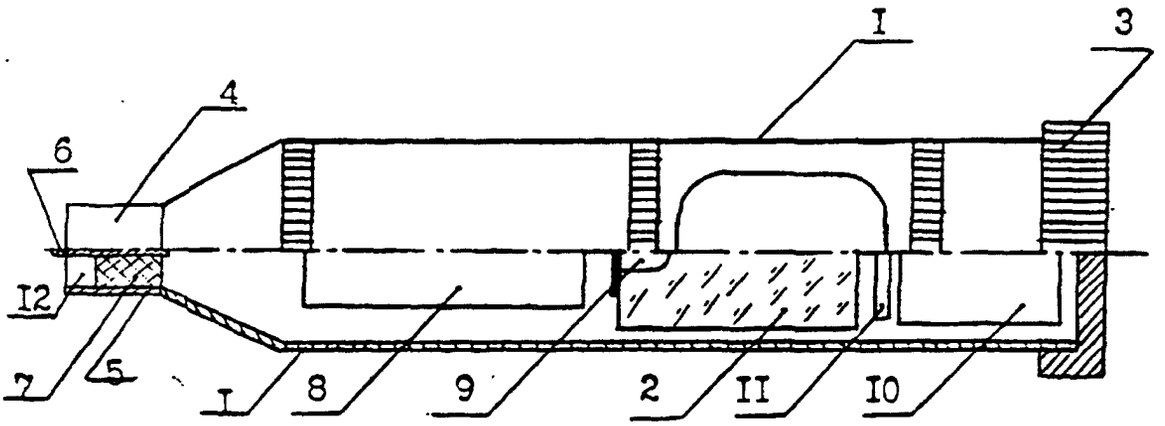


FIG.1

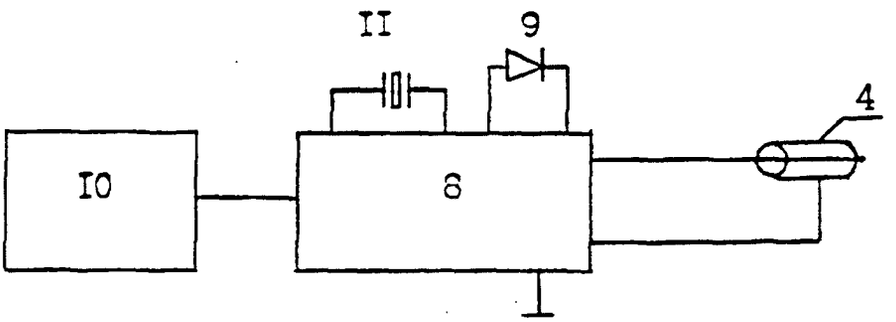


FIG.2