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(71) Applicant and
(72) Inventor: **GIOVANNINI, Enore** [IT/IT]; Via Zanetta, 8, I-46023 Gonzaga-Mantova (IT).

(74) Agent: **AGAZZANI, Giampaolo**; Agazzani & Associati S.R.L., Via dell'Angelo Custode, 11/6, I-40141 Bologna (IT).

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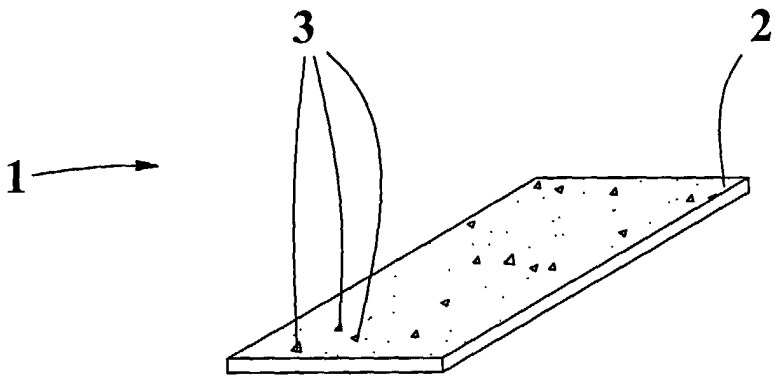
(54) Title: REBALANCING DEVICE FOR ELECTRIC POTENTIAL OF CELL MEMBRANE AND USE THEREOF



(57) Abstract: A rebalancing device for the electric potential of the cell membrane includes a base support (2), constituted by a epoxy resin including isocyanate and toluol, associated with a piezoelectric mineral composition (3) fit for emitting electromagnetic fields at very low frequency. The piezoelectric mineral composition (3) is constituted essentially by 10-30 % of albite, preferably 15 %, 20-40 % of tourmaline, preferably 30 %, 10-50 % of quartz, preferably 30 %, 10-20 % of chlorite, preferably 13 % and 10-20 % of illite, preferably 12 %.

REBALANCING DEVICE FOR ELECTRIC POTENTIAL OF CELL MEMBRANE AND USE THEREOF

TECHNICAL FIELD

The present invention refers to the medical devices, in particular refers to a rebalancing device for electric potential of the cell membrane fit to favor the whole intracellular functions, such as the oxygen absorption.

BACKGROUND ART

It is known that the cell membrane is a kind of "respiratory apparatus" for the cell since it determines substantially the oxygen introduction and therefore the activity and the functionality of the mitochondrions which are cell organs seat of the respiration and the energy production of the same cell.

In other words, the cell oxygenation and the mechanism of body energy production, better known as Krebs cycle, is strongly influenced by the "transpirability" of the cell membrane that works in optimal way when its electric potential is "balanced."

Lacking said balance, the cell membrane badly "transpires", the mitochondrions do not operate with full functionality and, for instance, the lack of oxygenation causes the generation of lactic acid, whose toxicity is known and such to cause a decrement in the energy production of the cell and consequently of the organism in general. In such condition any animal organism feels marked exhaustion, physical resistance decrease causing excessive irritability, nervousness and stress in general.

The known medicines or drugs and therapies are suitable to increase the cell membrane "transpirability" and thus maintaining high the functionality of mitochondrions and the Krebs cycle, but have several drawbacks: the medicines must be administered at regular time intervals and consequently need a customer's special attention and besides they do

not have an immediate effect; instead the therapies are applied during the therapeutic sessions needing the customer's necessary availability with consequent logistic difficulties and waste of time.

Other drawbacks in the use of medicines or therapies are due to the beginning of unpleasant collateral effects such as for instance a general sense of numbness or daze.

DISCLOSURE OF THE INVENTION

Object of the present invention is to propose a rebalancing device for the electric potential of the cell membrane fit to improve the cell membrane "traspirability" and therefore to make easier the oxygen intake and the energy production thereof.

Other object is to propose a device fit to cause a vasodilative effect located at least in correspondence of the small peripheral circulation and therefore fit to obtain a beta-blocking effect.

Further object of the present invention is to propose a device having simple production, low cost and easy use.

The objects above-mentioned are achieved according with the content of the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The characteristics of the invention are underlined in the following with particular reference with the attached drawings, in which:

- figure 1 shows an axonometric view of a first embodiment of the device object of the present invention;
- figure 2 shows an axonometric view of a second embodiment of the figure 1 device;

- figure 3 shows a third embodiment of the figure 1 device.

BEST MODE OF CARRYING OUT THE INVENTION

With reference to figure 1, numeral 1 indicates the rebalancing device for the electric potential of the cell membrane including a base support 2 to which it is associated a piezoelectric mineral composition 3 fit for emitting electromagnetic fields at very low frequency.

In the preferred embodiment the base support 2 includes an epoxy resin including isocyanate and toluol, molded as an almost rigid plaque, of the credit card type.

The piezoelectric mineral composition 3 is essentially constituted by: 10-30% of albite, preferably 15%, 20-40% of tourmaline, preferably 30%, 10-50% of quartz, preferably 30%, 10-20% of chlorite, preferably 13% and 10-20% of illite, preferably 12%.

This composition, in micronized granules, is enclosed in homogeneous way into the device 1 in such a way that the so molded plaque emits a homogeneous electromagnetic field at very low frequency, with a wavelength varying from 1 to 30 microns, preferably 9 microns.

The user contacts the device 1 with his body, preferably at the sternum or heart or acupuncture or painful area, for a period of one hour per day at least in order to get the salutary rebalancing effect of the electric potential of the cell membrane, so improving Krebs's cycle thereof.

A usage variant consists in contacting the device 1 with the skin in correspondence of the areas at which the consumer desires to reactivate the peripheral circulation of the small capillaries so vasodilating these latter.

A second embodiment of the device 1, shown in figure 2, provides that the base support 2 is a flexible thin layer of plastic film type so thin to be applied, for instance by means

of adhesive, even to curved surfaces of a user and a portable object, for instance the battery of a cellular telephone or a computer monitor or a television.

In a third embodiment of the device 1, shown in figure 3, the base support 2 is constituted by color powder for fabrics or yarns 4 to which a percentage of powder of the piezoelectric mineral composition is mixed. Particularly 1-4 grams, preferably 2, of powder of the piezoelectric mineral composition 4 are mixed with 1 kilogram coloring powder for fabrics.

In this case the device 1 is the mixture, constituted by the powders of color and piezoelectric mineral, that is homogeneously distributed in correspondence of the coloring condition of the fabric or yarn 4 to which said device must be applied.

It is advantageous to underline that the use of this device 1 allows the rebalancing of the electric potential of the cell membranes also strengthening the global energetic balance of the living body, in such a way that the electro-pollution sources (for instance cellular phones, hairdryers, electric razors and similar apparatuses) do not negatively influence the body.

The main advantage of the present invention is to provide a rebalancing device for the electric potential of the cell membrane fit to improve its "transpirability" and therefore to facilitate the oxygen intake and the energy production thereof.

Another advantage is to provide a device suitable to cause a vasodilative effect located at least in correspondence of the small peripheral circulation.

Further advantage is to provide a device having simple production, low cost and easy use.

CLAIMS

1) Rebalancing device for electric potential of cell membrane characterized in that includes a base support (2) to which it is associated a piezoelectric mineral composition (3) fit to emit electromagnetic fields at very low frequency.

2) Device according to claim 1 characterized in that said base support (2) includes a epoxy resin including isocyanate and toluol.

3) Device according to claim 2 characterized in that the base support (2) is an almost rigid plaque.

4) Device according to claim 2 characterized in that said base support (2) is a flexible thin layer.

5) Device according to claim 1 characterized in that said base support (2) includes 1 kilogram of color powder for fabrics (4) and from 1 to 4 grams, preferably 2 grams, of said piezoelectric mineral composition.

6) Device according to any of the preceding claims characterized in that said piezoelectric mineral composition (3) essentially includes: 10-30% of albite, preferably 15%, 20-40% of tourmaline, preferably 30%, 10-50% of quartz, preferably 30%, 10-20% of chlorite, preferably 13% and 10-20% of illite, preferably 12%.

7) Device according to claim 1 characterized in that said low frequency has a wavelength ranging from 1 to 30 microns, preferably 9 microns.

8) Use of the device according to any of the preceding claims in such a way that the user contacts said device with his body, preferably at the sternum or acupuncture or painful area, for at least one hour per day.

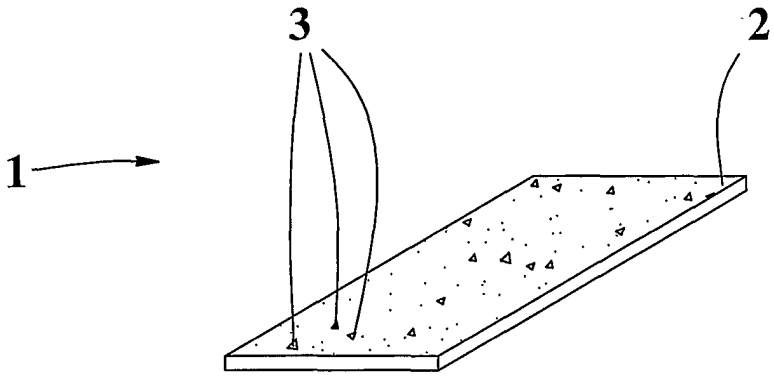


FIG.1

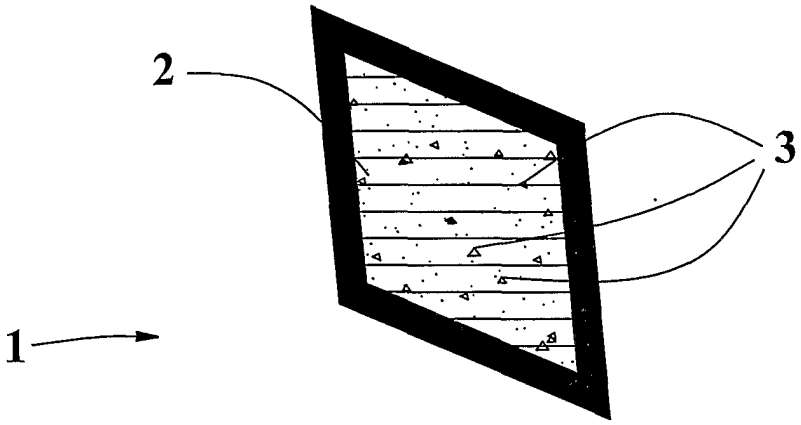


FIG.2

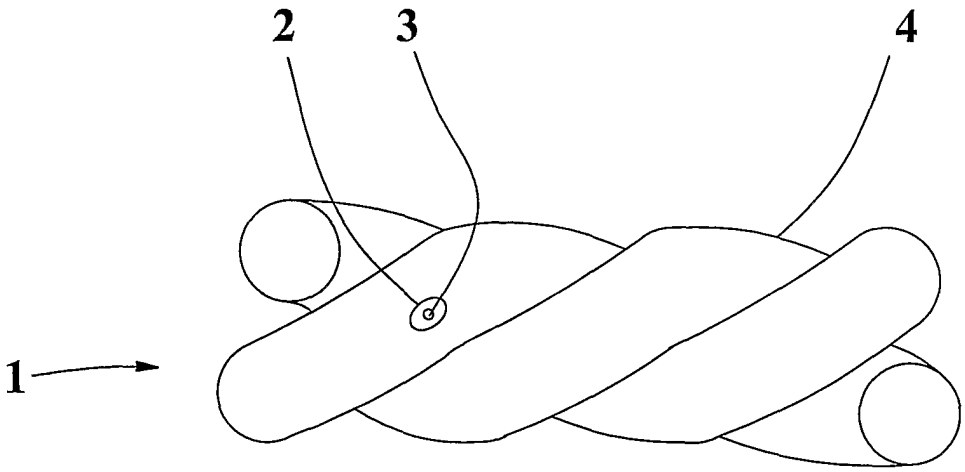


FIG.3

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61N1/34 A61N1/20 A61N1/24

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)
IPC 7 A61N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 14, 22 December 1999 (1999-12-22) & JP 11 239623 A (NIPPON GIJUTSU KAIHATSU CENTER:KK), 7 September 1999 (1999-09-07) abstract	1,2,4,7
X	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 11, 30 September 1999 (1999-09-30) & JP 11 164870 A (OOKUBO MASAKO), 22 June 1999 (1999-06-22) abstract & US 6 203 562 B1 (OHKUBO) 20 March 2001 (2001-03-20)	1-3

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
31 August 2001	06/09/2001

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Grossmann, C.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 013, no. 501 (C-652), 10 November 1989 (1989-11-10) & JP 01 198566 A (KUBO GIJUTSU JIMUSHO:KK), 10 August 1989 (1989-08-10) abstract	1,4,5
X	US 5 787 525 A (SUZUKI MITSUO ET AL) 4 August 1998 (1998-08-04)	1,4,7
A	column 2, line 8 -column 3, line 54	5,6
X	US 3 493 986 A (ERWIN CHARLES W) 10 February 1970 (1970-02-10)	1,4
A	column 3, line 17-31	6,7

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern al Application No
PCT/IB 01/01180

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 11239623 A	07-09-1999	NONE	
JP 11164870 A	22-06-1999	US 6203562 B	20-03-2001
JP 01198566 A	10-08-1989	NONE	
US 5787525 A	04-08-1998	US 6034520 A US 5863653 A	07-03-2000 26-01-1999
US 3493986 A	10-02-1970	NONE	