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(54) Title: STRUCTURE FOR AUDITIVE KINESTHETIC STIMULATION OF A PERSON

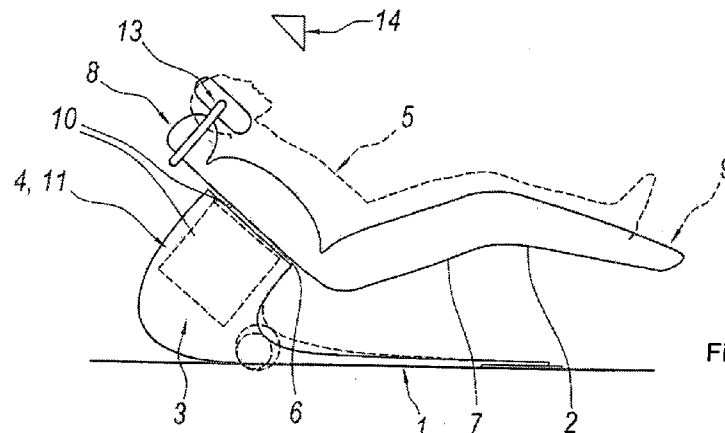


Figure 1

(57) Abstract: A structure (1) for the auditive kinaesthetic stimulation of a person (5) comprising a support (2) of the person; a base (3) supporting the support (2) of the person and means (4) for sound reproduction suitable to transmit to the body of the person (5), by the base (3), at least sensorial and motory stimulations by sound frequencies.

WO 2014/057297 A1

“Structure for auditive kinesthetic stimulation of a person”.

The present invention refers to the technical field regarding the rehabilitation equipments and it concerns, in particular, a structure for the sound and kinesthetic support of the person. It has recently been established that a person suffering from speech disorders (aphasia – dyslexia) or a patient in coma, or in recovery phase, has in various cases benefits, in order to get out of its condition, by sound stimuli and physical contact. Therefore, currently is in use to stimulate said patients with specialized massages do by a physiotherapist and with the voice and the presence of a close relative or loves ones, with the aim to expediently stimulating from the sensorial and emotional point of view. These means have the fundamental drawback to be susceptible to use improvised. Their use is subjected, in general, to a wide discretion of the physiotherapists as well as a certain degree of empiricism that can penalize in generally the therapeutic efficiency. Aim of the present invention is so to obviate to such drawbacks, making available a structure suitable to give to the patient an audio multisensorial and kinesthetic stimulation, i.e. suitable to give also a neurological stimulation to be physically perceived also to the bodily parallel senses and those strictly hearing. Said multisensorial stimulation can be eventually combined in synergetic way also with other kinds of stimulation, for example of visual kind. According to this aim, this result is achieved by a structure for the kinesthetic support of the person, the technical characteristics of which are stated in claim 1. The other claims refer to other advantage aspects of the present structure. The technical characteristics of the invention are; however, better pointed out in the reading of the following detailed description, arranged with reference to the enclosed drawings, whose show an exemplifying and not limiting embodiment, in which: - figure 1 is view in side of a structure according to the invention, schematically illustrated as a whole; - figure 2 is view in top of the figure 1; - figure 3 is plan view from above of a particular “A” of the invention illustrated with removed parts to better showed

other ones; - figure 4 is plan view from above of a particular "B" of the invention illustrated with removed parts to better show other ones; - figure 5 is a block diagram schematically illustrating the functional relation acting between some more relevant parts forming the invention. With reference to the figures of the enclosed drawings, in the figures 1 and 2 is pointed out with 1 a structure in its whole for kinesthetic stimulation of a person 5, structure 1 that essentially comprising: a support 2 for the person, a base 3 for supporting the support 2 of the person and means 4 to reproduce the sound and video signal. The support 2 of the person comprises a back 6, a seat 7, a headrest 8 and a legs-rest 9 that can be angularly oriented each other so to create in generally a suitable support to the body of the person 5 in relation to the pathological condition of the same. Alternatively, the support 2 can be, however, formed in different way and, at limit, to be given, for example, to a small conventional bed and/or wheelchair, if these supports are compatible with the pathological state of the person 5. The base 3 of support comprises (figure 3) a metallic boxed body, hollow inside, closed on all the sides which is rigidly interconnected, with a proper plane surface 10, of base, upper, with the back 6 of the support 2 of the person. The supporting base 3 houses inside the reproduction means of audio and video signal whose specifically including also a shaker 11 suitable to reproduce vibrations in low frequency, i.e. acting with frequencies that as a rule are comprised between 40Hz and 120Hz, to be selected depending on the cases. A removable panel 12 equips the supporting base 3 to permit to reach the shaker 11 wholly contained in it. On the base of its particular structure, the base 3 has the function of soundboard that, in virtue of the rigid connection that connects it to the support 2 of the person 5, transmits the vibrations reproduced to the shaker 11 that are perceived to the person 5 in form of sensorial micromotory stimulations those with benefit are transmitted to all the body, also if they are prevalently concentrated onto the upper part of the body. The means of sound reproductions are audio speakers 13, of small dimension, which are placed onto the headrest 8 and are placed beside the head of the person 5, in comparison with which said audio speakers 13 act preferably without direct contact. Said audio speakers 13, simulating conditions

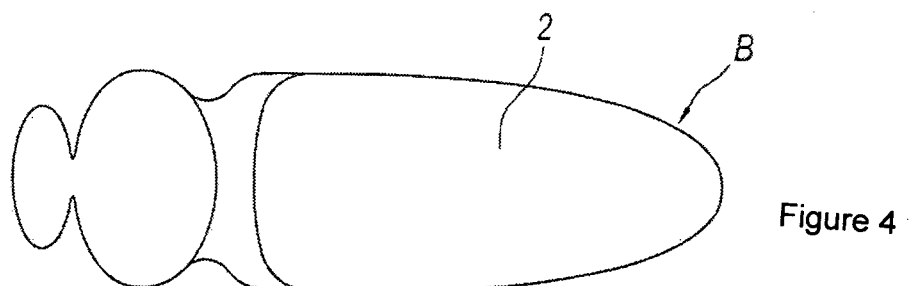
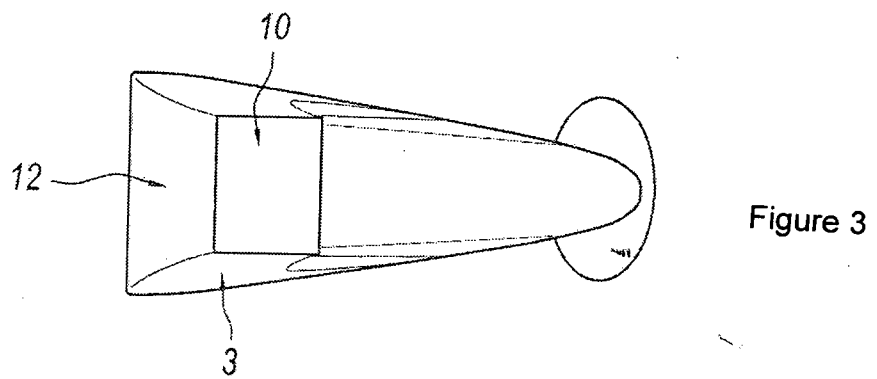
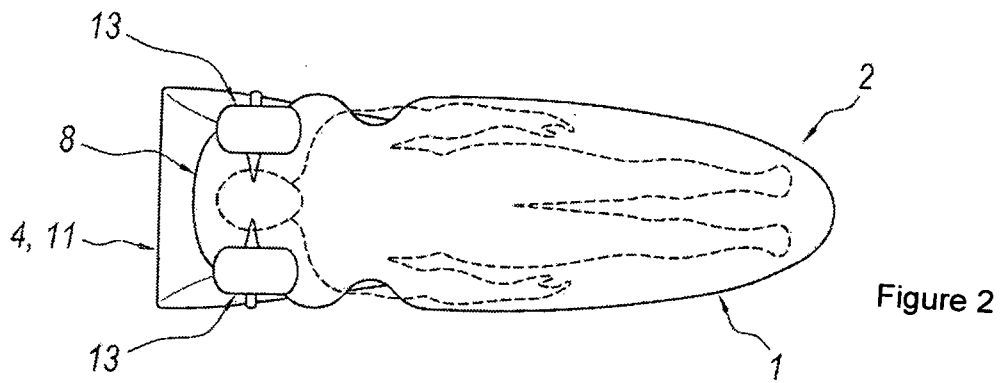
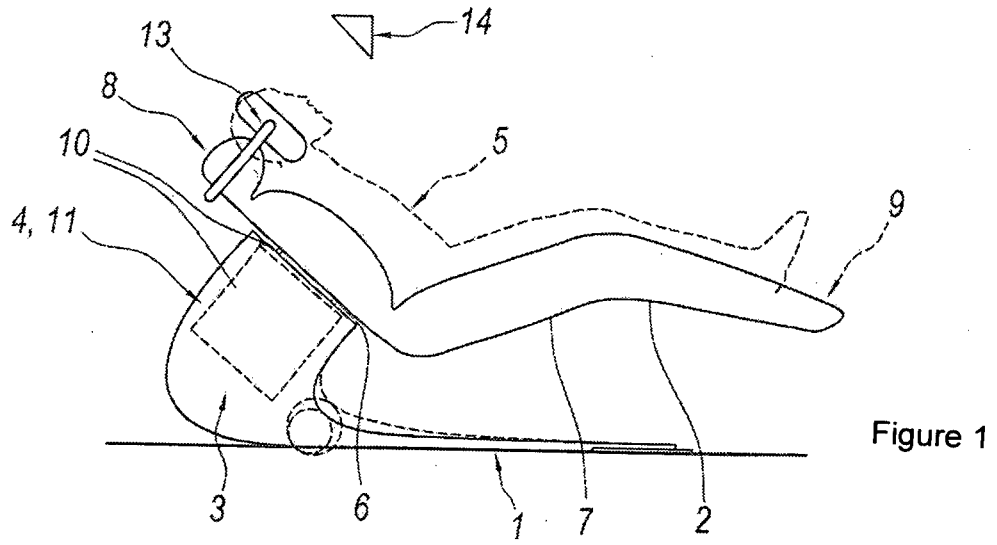
similar to those of stereo headphones, permit to recreate sound events more possible near to the reality but without having, differently to the headphone, physically contact onto the body of the person 5 subject to the treatment. Said audio speakers 13 preferably act with frequencies between 120 Hz and 20 kHz. With the aim to intensify the multisensorial stimulation of the person 5, the kinesthetic structure 1 can advantageously comprise also video means 14 controlled to video signals that are placed in such a way to give luminous effects nearness the face of the person 5. Said video means 14 can be actuated by a display (for example of the kind of LCD) placed over the person 5. The display can be operatively associated with the audio and video signal reproduction means 4 in such a way to create in combination with these an effect of maximum involving of the person 5 who is undergone to the treatment of sensor stimulation by the structure 1 of the present invention. Figure 5 show that the structure 1 comprises a video player which is interconnected with the video and luminous effect reproduction means 14 and it is, moreover, integrated with amplifiers 15 that are in operating interconnected with means 11, 13 of audio signal reproduction. Said amplifiers 15 are preferably actuated with apparatuses of kind "surround home theatre", that drive the whole of all the different diffusers and shakers. As an example, the diagram of figure 5 show that the amplifiers 15 drive by suitable connections of interconnection the left and right audio diffuser 13. A third further channel will drive the shaker 11, whereas the display 14 video or light emitter is directly controlled to the video exit of the DVD 16 defining of the reproduction means of video and audio signal 4. The source of the sound signals, such as of the video signals, so, may be actuated to a conventional CD or DVD 16 connected with the amplifiers 15, as well as at the display 14. The above described device is particular suitable for the treatment of the sensorial stimulation of patients with pathological condition connected to the communication, like are the persons suffer from speech disorders (aphasia – dyslexia), autism, treatment for the recovery and rehabilitation after an ictus, patients in coma or in pre awakening status. The subject matter so described is possible of industrial application; it is possible of numerous modifications and

variations all part of the present inventive step; all details can be changed, moreover, with technical equivalent components.

Claims.

- 1) Structure for auditive kinesthetic stimulation of a person (5), characterized in that to comprise a support (2) of the person; a base (3) for supporting the support (2) of the person and means (4) for sound reproduction suitable to transmit to the body of the person (5), by the base (3), at least sensorial, motory and auditory stimulations, by sound frequencies.
- 2) Structure, according to claim 1, characterized in that said base (3) for supporting and said support (2) of the person (5) are mutually interconnected in connection with a part of the support (2) to be associated at least at the upper part of the body of the person (5).
- 3) Structure, according to any of the previous claims, characterized in that said means (4) for sound reproduction are associated to the base (3) supporting the support (2).
- 4) Structure, according to any of the previous claims, characterized in that said supporting base (3) has an inside hollow structure.
- 5) Structure, according to any of the previous claims, characterized in that means (4) of sound and video reproduction (CD and DVD) are housed inside said base (3).
- 6) Structure, according to any of the previous claims, characterized in that said base (3) includes a metallic box-shaped body, with border entirely closed.
- 7) Structure, according to any of the previous claims, characterized in that said means (4) of sound reproduction act with frequencies between 40 Hz and 20 KHz.
- 8) Structure, according to any of the previous claims, characterized in that said means (4) of signal reproduction comprise a shaker (11).
- 9) Structure, according to any of the previous claims, characterized in that said base (3) comprises a removable panel to reach said shaker (11) housed inside.

- 10) Structure, according to any of the previous claims, characterized in that said means (4) of sound reproduction comprise links to audio speakers (13) placed beside the person head.
- 11) Structure, according to claim 10, characterized in that said audio speakers (13) act without contact with the person.
- 12) Structure, according to claims 10 or 11, characterized in that said audio speakers (13) are suitable to reproduce sound signals with frequencies comprise between 120Hz and 20 kHz.
- 13) Structure, according to any of the previous claims, characterized in that to comprise means (14) of video signal displaying or luminous effects direct to the person placed onto said support (2).
- 14) Structure, according to any of the previous claims, characterized in that to comprise amplifiers (15) operatively interconnected with said means (4) of sound reproduction.
- 15) Structure, according to claim 14, characterized in that said amplifiers (15) include also surround home theatre apparatuses.
- 16) Structure, according to any of the previous claims, characterized in that at least said sound signals are generated by a CD or DVD (16)
- 17) Structure, according to any of the previous claims, characterized in that said video signals are generated by a DVD (16).
- 18) Structure, according to any of the previous claims, characterized in that said support (2) of the person (5) includes an armchair, a bed or a wheelchair.



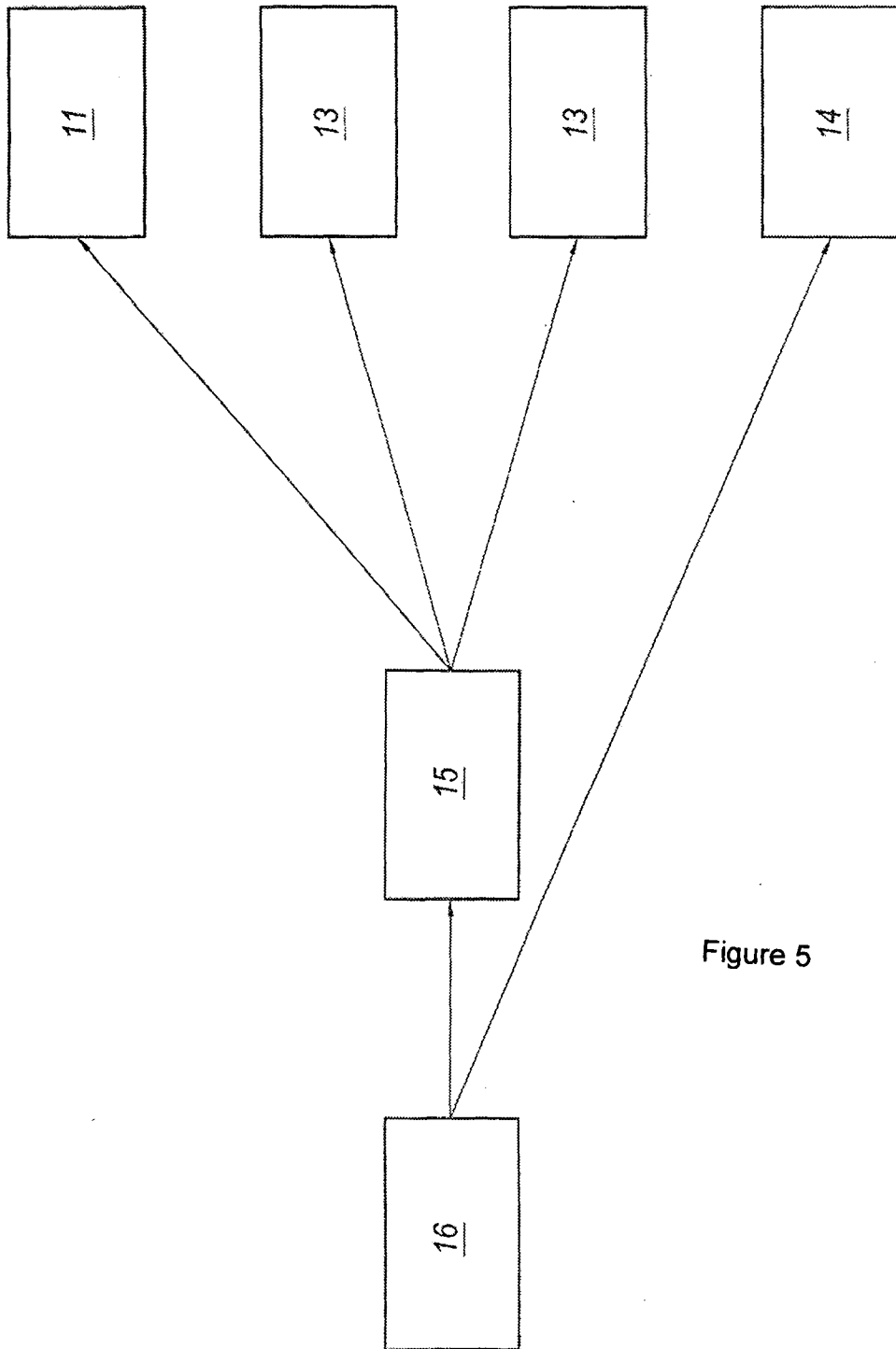


Figure 5

INTERNATIONAL SEARCH REPORT

International application No PCT/IB2012/002122

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61H23/02
 ADD.

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)
 A61H

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 practicable, search terms used)

EPO-Internal, 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	US 2012/051579 A1 (COHEN DANIEL E [US]) 1 March 2012 (2012-03-01) claims; figures -----	1-18
X	US 2009/152917 A1 (OSTLER JEFFREY [US] ET AL) 18 June 2009 (2009-06-18) claims; figures -----	1-9, 13-18
X	DE 10 2006 023027 A1 (BERC JOACHIM [US]) 4 January 2007 (2007-01-04) the whole document -----	1-4, 6-12, 18
X	US 2007/025575 A1 (OSER RICHARD B [US] ET AL) OSER RICHARD BARRY [US] ET AL) 1 February 2007 (2007-02-01) claims; figures -----	1-4, 8, 9, 14, 18
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Further documents are listed in the continuation of Box C.

See patent family annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance
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Date of the actual completion of the international search

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Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

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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.
A	US 2005/226449 A1 (YOUNG SCOTT [US]) 13 October 2005 (2005-10-13) figures -----	6

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/IB2012/002122

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