



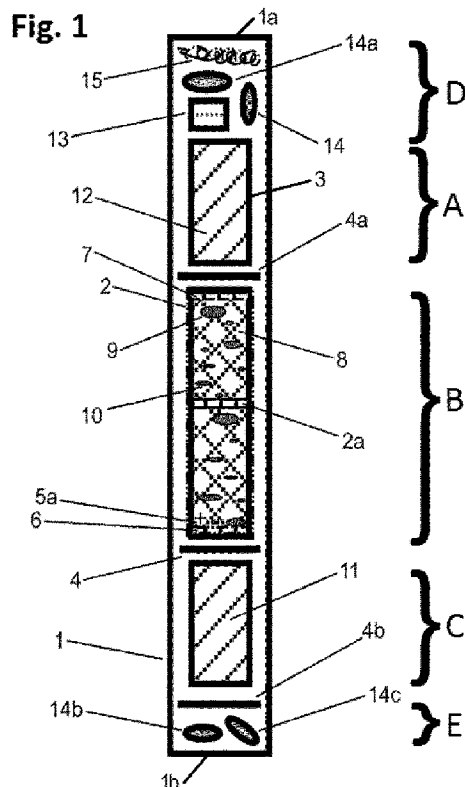
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[Continued on next page]

(54) Title: ELECTRICALLY CONDUCTIVE TUBE WITH CHAMBERS COMPRISING QUARTZ AND WITH A MAGNETIC ELEMENT OR A COPPER ELEMENT FOR REDUCING STRESS CAUSED BY ELECTROMAGNETIC FIELDS



(57) Abstract: The application concerns an apparatus for reducing stress on organisms caused by electromagnetic fields. The apparatus comprises a tube (1) consisting of an electrically conducting material, said tube being axially subdivided into chambers (A, B, C) centrally positioned within the tube between tube volumes (D, E) adjacent to the tube ends (1a, 1b) and filled with quartz granulate and quartz sand, respectively, said tube volumes including quartz material differing from the quartz material within said chambers. One of said tube ends is adapted to be irradiated with electromagnetic fields whereas the other of said tube ends is adapted to be directed onto said organisms. The quartz material of the tube volumes at the two tube ends has different grain sizes and different populations of grain sizes. The tube end adapted to be directed onto said organisms comprises at least one magnetic element (13) and/or at least one copper element (15).



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— *with international search report (Art. 21(3))*

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ELECTRICALLY CONDUCTIVE TUBE WITH CHAMBERS COMPRISING QUARTZ AND WITH A MAGNETIC ELEMENT OR A COPPER ELEMENT FOR REDUCING STRESS CAUSED BY ELECTROMAGNETIC FIELDS

The invention is related to an apparatus for reducing stress on organisms caused by (alternating) electromagnetic fields (EMF) of the kind defined in the preamble of claim 1.

5

Each electric load supplied with 230V/50Hz power emits alternating electromagnetic fields (EMF). Such electromagnetic fields may interact with organisms, thereby impairing the organisms. It is known that the EMF of WLAN, DECT-phones, mobile devices etc. cause such impairment. Concerning the discussion of health impacts caused by electromagnetic fields and waves there is often to report the tendency to dismiss those impacts as pointless. However, in the meantime the biological effectiveness of even weak fields can hardly be denied on the background of plural findings. On cell level, there exist numerous publications proving DNA damage to cultivated cells in addition to oxidative stress. Such publications comprise inter alia:

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- Agarwal A et al. (2009): Effects of radiofrequency electromagnetic waves (RF-EMW) from cellular phones on human ejaculated semen: an in vitro pilot study. Fertility and sterility 92:13181325

- Diem E et al. (2005): Non-thermal DNA breakage by mobile-phone radiation (1800 MHz) in human fibroblasts and in transformed GFSH-R17 rat granulosa cells in vitro. Mutation Research/Genetic Toxicology and Environmental Mutagenesis 583:178-183.

20

- Blank M and Goodman R (2009): Electromagnetic fields stress living cells. Pathophysiology 16:71-78

- Kundi M and Hutter HP (2009): Mobile phone base stations - Effects on wellbeing and health. Pathophysiology 16:123-135).

25

It is known to use so called „Harmonizers“ for influencing EMF radiated beings beyond the electrical physical knowledge. The beneficial effect of those devices is, however, controversial, but can be partly proved on cell level.

30

Various embodiments of the apparatus for reducing stress on organisms caused by EMF are disclosed in the DE19635913A1, DE19618493A1 and DE19713097A1. The beneficial effect of using this known apparatus essentially consisting of a system of multiple chambers filled with different crystal materials for reducing stress on organisms caused by EMF, thereby enhancing the well-being of test persons could be proved by field tests over the course of the years, said persons having been subjected to EMF caused stress of different origin. Therefore, there is reason to believe that the EMF

load on organisms can be reduced by the known apparatus. There is, however, no verified proof for the beneficial effect of the known apparatus.

The above three documents suggest that caused by a resonance effect within the known tube-shaped apparatus a downward conversion takes place for an alternating high frequency electromagnetic field input at the tube's input end to an alternating low frequency electromagnetic field causing so to speak to defang the EMF for the cells of an organism positioned at the output end of the tube where the EMF leaves the tube with reduced frequency. In this connection, the apparatus is called in those documents to be a resonator, namely a multiple chamber cavity resonator (MHR = Mehrkammer-Hohlraum-Resonator).

There is a need to optimize the known apparatus for reducing stress on organisms caused by (alternating) electromagnetic fields (EMF) in such a kind that an objective scientific proof for the reduction of EMF caused stress on organisms can be yielded at least on cell level.

It is the object of the present invention to optimize the known apparatus for reducing stress on organisms caused by (alternating) electromagnetic fields (EMF) in such a kind that an objective scientific proof for the reduction of EMF caused stress on organisms can be yielded at least on cell level.

This object is attained by the features of claim 1. Advantageous developments of the invention are defined by the sub claims.

The invention therefore provides an apparatus for reducing stress on organisms caused by (alternating) electromagnetic fields (EMF), comprising a tube consisting of an electrically conducting material, said tube being axially subdivided into chambers centrally positioned within the tube between tube volumes adjacent to the tube ends and filled with quartz granulate and quartz sand, respectively, said tube volumes including quartz material differing from the quartz material within said chambers, one of said tube ends being adapted to be impacted with (alternating) electromagnetic fields, the other of said tube ends being adapted to be directed onto said organisms, characterized in that the quartz material of the tube volumes at the two tube ends has different grain sizes and different population of grain sizes, and in that said other tube end directed onto said organisms comprises at least one magnetic element and/ or at least one copper element.

In addition to the apparatus according to the prior art described above the apparatus according to the invention comprises at both ends of the tubular quartz granulate or granules of preferable different grain sizes and different population of grain sizes, as well as further preferably at least one magnetic element and / or at least one copper element is provided at the other tube end, directed
5 onto said organisms. Experiments have shown that the magnetic as well as the copper element are suited to enhance the effective strength of the apparatus according to the present invention.

The surprisingly strong efficiency of the apparatus according to the present invention with respect to reducing EMF stress is proved by an expert report done on cell level basis by the biochemist Prof. Dr.
10 Peter C. Dartsch (Dartsch Scientific GmbH, Oskar-von-Miller Str. 10, 86956 Schongau, Germany) dated February 12, 2016. The setup and implementation of the experiments and the results thereof which form the basis of the expert opinion are set out below in the drawing part of the description. In detail, by using the device according to the invention (in the form of the first and second embodiment of the apparatus described below in the drawing part of the description), the cell effect
15 of the electromagnetic alternating fields of the DECT telephone Gigaset 4010 Classic could be reduced by more than one half. Using two devices, which were crossed in the beaming direction of the apparatuses, 30 cm apart from the cells, the (negative)Acellular effects of the electromagnetic alternating fields of the DECT telephone were even completely neutralized.

20 According to further advantageous embodiments the apparatus of the present invention provides for:

- the magnetic element for instance being a magnetic beam element or a magnetic ring or a magnetic small tube,

25 - the copper element for instance being thin wire configured as a clockwise or anti-clockwise wire coil,

- the surface of the copper element preferably comprising a nano multiple coating.

30 - the nano multiple coating comprises different materials containing CO₂, preferably additionally including metal portions,

- the copper element being positioned directly at the other of the tubes ends, the magnetic element being positioned downstream (to the center of the tube) of the copper element,

- the chambers of the tubes being separated from one another by walls made from metal sheets

5 preferably consisting out of copper, iron, zinc or aluminum,

- preferably two or three chambers being provided,

- the chambers being filled with quartz sand and/or quartz sand mixtures, and preferably

10 additionally with single crystal and/or rose quartz pebbles having preferably different sizes, and

- the central tube chamber being subdivided into two sub-chambers of the same size by means of partition walls out of carbonic material, preferably hard coal, coal, ash or potash.

15 The present invention further provides for a system for reducing the stress on organisms caused by (alternating) electromagnetic fields (EMF), comprising plural of the above defined apparatuses.

Advantageous embodiments of the system in accordance with the present invention provide for:

20 - the tubes of the apparatuses being aligned coaxially within the bundle and positioned substantially contacting one another, or alternatively

- the longitudinal axes of the tubes of the apparatuses being arranged under an angle in such a kind that these axes meet at one point in front of said other of said tube ends being adapted to be

25 directed onto said organisms,

- two apparatuses being provided, the axes of which are arranged in a V-shape.

30 In the following embodiments of the invention are described with respect to the drawing;

Fig. 1 shows a schematic longitudinal section view of a first embodiment of the apparatus according to the invention configured as a three-chamber system;

Fig. 2 shows a schematic longitudinal section view of a second embodiment of the apparatus according to the invention configured as a four-chamber system;

5 Fig. 3 shows block diagrams of different experimental setups including the apparatus of the invention for proving the effective strength of the apparatus in reducing EMF caused stress on cells of connective tissue, particularly EMF caused stress originating from DECT phones, and

10 Fig. 4, 5 show diagrams of the results of different experiments performed by means of the experimental setups of Fig. 3.

A first embodiment of the apparatus of the invention for reducing stress on organisms caused by
 15 (alternating) electromagnetic fields (EMF) is shown in Fig. 1. This apparatus comprises a tube 1 consisting of an electrically conducting material, as for instance copper, which tube is axially subdivided into three chambers A, B and C filled with quartz granules and quartz sand, respectively, hence defining a three-chamber system. At its both ends 1a and 1b the tube 1 is closed by means of closure caps. The tube end 1a is configured to be exposed to alternating electromagnetic fields,
 20 whereas the tube end 1b is configured to be directed to organisms, the exposure with electromagnetic fields of which is to be reduced by means of the apparatus.

The two external chambers A and C join tube volumes D and E extending up to the tube ends 1a and 1b, respectively. The volumes D and E inter alia include quartz material differing from the quartz
 25 material the chambers A, B and C are filled with.

The chambers A, B and C are separated from one another by metallic partition walls 4 (out of copper) and 4a (consisting of alumina, zinc or iron). A further wall 4b (also consisting of alumina, zinc or iron) is positioned at the external end of the chamber C, pointing to the tube end 1b. The
 30 partition walls A, B and C contain quartz material included within tube-shaped housings 2, 3 and 5, preferably formed as short copper tubes.

The centrally positioned chamber B includes the housing 2 which is closed at both ends by closure sheets 6, 7 of metal, the closure sheet 6 consisting of aluminum, zinc or iron, whereas the closure

sheet 7 consists of copper. The tubes ends 1a and 1b can be covered from the outside by a solid or a perforated sheet of synthetic or natural material, such as wood.

The housing 2 is filled with a mixture out of relatively finely granulated SiO_2 /quartz with rose quartz sand including small rose quartz stones 9 and 10. The housing preferably is partitioned by means of an internal partition wall into two volumes of the same size, said wall consisting of carbonic material, preferably hard coal, coal, ash or potash.

The two external housings 3 and 5 are of equal length but shorter than the housing 2 of the central chamber B. Both housings 3 and 5 contain the same quartz sand filling 12 and 11, respectively.

The tube volume E also contains differently sized small rose quartz stones, as for instance indicated by reference signs 14b and 14a. Additionally, in the volume D, directly positioned at the tube end 1a, there is provided a copper element 15 in the form of a thin wire configured as a clockwise or anti-clockwise wire coil, the longitudinal axis of which preferably extending obliquely to the longitudinal axis of the tube 1. The copper element preferably comprises a nano multiple coating, including different materials containing CO_2 , preferably additionally including metal portions.

Further, a magnetic element 13 is positioned within the tube volume D, said element being formed as a magnetic beam, a magnetic ring, or as small magnetic tubes. The magnetic element 13 preferably is positioned between the copper element 15 and the housing 3 of the chamber A.

A second embodiment of the apparatus of the invention for reducing EMF caused stress for organisms is shown in Fig. 2. This embodiment features a four-chamber system. Starting from the three-chamber system of Fig. 1 the four-chamber system of Fig. 2 comprises an additional central chamber B' including a housing 2' which chamber/housing arrangement is identical to the chamber B and the housing 2 thereof including its quartz filling shown on Fig. 1. The two chambers B and B' are separated from one another by a separation wall 16 the construction of which corresponds to the construction of the separation walls 4 and 4a. A further separation wall 20 is provided between the housing 3 of the chamber A and the chamber D.

In direction to the tube end 1a the chamber A corresponding to the chamber A of Fig 1 follows to the chamber B. In direction of the other tube end 1b the chamber C corresponding to the chamber C of the first embodiment follows to the chamber B'. Separated from the chamber C by a further

separation all 17 there is an additional housing 18 positioned in direction to the tube end 1b and corresponding to the housing 5 concerning size and quartz filling.

The tube volumes D and E of the embodiment of the apparatus shown in Fig.2 essentially correspond to the tube volumes D and E of the first embodiment of the apparatus shown in Fig. 2 including the filling but with a varied positioning of the magnetic element 13 and the small quartz stones 14, 14a, wherein volume e exclusively contains a small quartz stone 14b.

In the following the setup and the implementation of experiments to prove the effect of the apparatus according to the invention (referred to as MHF) in reducing EMF stress for organisms will be described along Figs. 3, 4 and 5. Together with the results attained thereby. The setup and the implantation of experiments as well as the results attained are subject of the above-mentioned expert opinion of Prof. Dr. Peter C. Dartsch.

The results of the experiments are shown in Fig. 4 and 5. Indicated is respectively the mean value of the 14 indentations of the experiments (#) \pm standard deviation.

Fig. 4:

1008: DECT phone only. Reduction of the cell viability of the exposed cells by $45.8 \pm 6.9\%$. # 1011: DECT telephone + SHLS 1. Reduction of cell viability by $21.4 \pm 8.7\%$. # 1012: DECT telephone + SHLS 1 + crossed MHR with plus end toward cells at a distance of 30 cm from the cell plane. Reduction of cell viability by $3.3 \pm 6.7\%$. # 1014: DECT telephone + crossed MHR with plus end toward cells at a distance of 30 cm to the cell plane. Reduction of cell viability by $5.2 \pm 7.0\%$. # 1015: DECT telephone + SHLS 2 + crossed MHR with plus end toward cells at a distance of 30 cm to the cell plane. Reduction of cell viability by $5.9 \pm 8.2\%$. Analog to # 1012. # 1017: DECT telephone + SHLS 2. Reduction of cell viability by $15.4 \pm 10.9\%$. Analog to # 1011.

Fig. 5:

1018: No DECT phone, crossed MHR with positive end directed toward cells spaced 15 cm from the cell plane. Stimulation of cell viability by $4.0 \pm 3.4\%$. # 1019: No DECT telephone, crossed MHR with minus end directed toward cells at a distance of 15 cm to the cell plane. Stimulation of cell viability by $2.1 \pm 2.9\%$. Analog # 1018. # 1022: DECT phone + incubator in wall socket, SHLS 2 + LED table lamp with a weak magnetic rose quartz ring. Reduction of cell viability by $17.1 \pm 5.6\%$.

Setup and Implementation of Experiments

5 Basis for comparative cell tests were the premises of Dartsch Scientific GmbH in 86956 Schongau, which had been tested during previous radiation / site research projects and turned out to be suitable as low / high-frequency low-radiation sites for the present experiments. For example, in the vicinity of a few hundred meters there are no mobile radio transponders (<1 microwaves / cm^2) and / or low-frequency alternating-field emitters, as represented by transformers or 50 Hz mains power
10 lines.

A standardized setup was used, which had been developed and successfully used for previous studies. For this purpose, connective tissue fibroblasts (cell line L-929, standard cell line for cytotoxicity tests) from 80 to 90% confluent mass cultures at a cell density of 50,000 cells / well were
15 seeded into 14 central wells of a 96 well plate (200 μl / well) and incubated in a gassing incubator at 37 °C with 95% air and 5% CO_2 for 24 hours. The culture medium used was RPMI 1640 with 5% fetal calf serum and the usual amounts of penicillin / streptomycin. After 24 hours, the culture medium was suctioned off and replaced by a pH-stable culture medium (Leibowitz L-15) under normal ambient conditions (250 μl / well). The culture plates were then placed in a Cultura M Mini-
20 Incubator and incubated at 37 ± 1 °C. The irradiation-active base station of a Gigaset 4010 Classic DECT telephone (- 46 dBm, 1.885 GHz) was put into continuous operation directly on the culture plate in the incubator. A second Mini Incubator was placed in the same premises at least 10 m apart and the corresponding control culture was incubated at 37 ± 1 °C with minimal influence of the DECT telephone. Reference is made to FIG. 3 for an overview of the various experimental setups
25 including the additive multi-chamber cavity resonators (MHR and SHLS) as well as of the DC LED light. Further details are shown below together with the test results.

After an exposure time of 24 hours, the culture medium of the cells was sucked off and replaced by 120 μl of fresh RPMI culture medium with 10% by volume of XTT and incubated for 120 minutes in
30 the incubator at 37 °C. XTT is the sodium salt of 2,3-bis [2-methoxy-4-nitro-5-sulfophenyl] -2H-tetrazolium-5-carboxyanilide and has a yellowish color. Mitochondrial dehydrogenases cleave the tetrazolium ring of XTT and form orange-colored and water-soluble formazan crystals whose optical density can be measured at a defined wavelength. After the incubation time of 120 min, the optical density was measured as a differential measurement $\text{AOD} = 450 - 690$ nm in an Elisareader (BioTek

Slx808) after a 4-second shaking period. The values obtained were recorded and statistically evaluated.

Results of the Experiments

5

The results of studies conducted in the period from December 2015 to January 2016 and their results are summarized and discussed below regarding the diagrams of Figs. 4 and 5. In these diagrams, each measuring point of the measured cell vitality corresponds to a depression of the 96-hole plate. For each single experiment, 14 wells for the exposed cells and the control cells were measured and evaluated.

10

The electromagnetic alternating fields of the Gigaset 4010 Classic DECT telephone reduced the vitality of the exposed connective tissue cells by $45.8 \pm 6.9\%$ (# 1008) compared to the untreated control.

15

Intermediate positioning of two additive MHRs (SHLS 1 or SHLS 2) reduced the cell activity of the electromagnetic alternating fields of the DECT telephone by more than one half (# 1011 and # 1017). The reduction in cell viability was only $21.4 \pm 8.7\%$ (# 1011) and $15.4 \pm 10.9\%$ (# 1017), respectively. The cellular effects of electromagnetic fields of the DECT telephone were completely neutralized (# 1012, # 1014, # 1015) using two MHRs crossed in the bearing direction on the cells at a distance of 30 cm from the cells. A statistically significant difference between the controls and the exposed cells in this experimental setup was not established (Wilcoxon-Mann-Whitney test). It did not matter whether an SHLS1 or SHLS2 was additionally used (# 1012 and # 1015).

20

The use of the crossed MHR without a DECT telephone resulted in a low and statistically not significant promotion of cell viability (# 1018 and # 1019). There was no difference between the center-side alignment of the plus and minus ends of the resonators. The DECT telephone without MHR, but an additional LED table lamp (light not covered) being placed before the incubator with MHR and magnetic rose quartz ring (# 1022) reduced the negative cell effect of the EMF by nearly the same amount as using the SHLS 1 and 2 in the Try # 1011 and # 1017.

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Claims

- 5 1. An apparatus for reducing stress on organisms caused by (alternating) electromagnetic fields (EMF), comprising a tube consisting of an electrically conducting material, said tube being axially subdivided into chambers centrally positioned within the tube between tube volumes adjacent to the tube ends and filled with quartz granulate and quartz sand, respectively, said tube volumes including quartz material differing from the quartz material within said chambers, one of said tube ends being adapted to be impacted with (alternating) electromagnetic fields, the other of said tube ends being adapted to be directed onto said organisms, characterized in that the quartz material of the tube volumes at the two tube ends has different grain sizes and different population of grain sizes, and in that said other tube end directed onto said organisms comprises at least one magnetic element and/ or at least one copper element.
- 10 2. The apparatus of claim 1, wherein the magnetic element is a magnetic beam element or a magnetic ring or a magnetic small tube.
- 15 3. The apparatus of claim 1 or 2, wherein the copper element is a thin wire configured as a clockwise or anti-clockwise wire coil.
- 20 4. The apparatus of claim 1, 2 or 3, wherein the surface of the copper element comprises a nano multiple coating.
- 25 5. The apparatus of claim 4, wherein the nano multiple coating comprises different materials containing CO₂, preferably additionally including metal portions.
- 30 6. The apparatus of one of claims 1 to 5, wherein the copper element is positioned directly at the other of the tubes ends, the magnetic element being positioned downstream (to the center of the tube) of the copper element.
7. The apparatus of one of claims 1 to 6, wherein the chambers of the tubes are separated from one another by walls made from metal sheets preferably consisting out of copper, iron, zinc or aluminum.

8. The apparatus of one of claims 1 to 7, wherein preferably two or three chambers are axially positioned in the tube.
- 5 9. The apparatus of one of claims 1 to 8, wherein the chambers are filled with quartz sand and/or quartz sand mixtures, and preferably additionally with single crystal and/or rose quartz pebbles having preferably different sizes.
- 10 10. The apparatus of one of claims 1 to 9, wherein the central tube chamber is subdivided into two sub-chambers of the same size by means of partition walls out of carbonic material, preferably hard coal, coal, ash or potash.
11. A system for reducing the stress on organisms caused by (alternating) electromagnetic fields (EMF), comprising plural apparatuses of one of claims 1 to 10 combined into a bundle.
- 15 12. The system of claim 11, wherein the tubes of the apparatuses are aligned coaxially within the bundle and positioned substantially contacting one another.
- 20 13. The system of claim 11, wherein the longitudinal axes of the tubes of the apparatuses are arranged under an angle in such a kind that these axes meet at one point in front of said other of said tube ends being adapted to be directed onto said organisms.
14. The system of claim 13, wherein two apparatuses are provided, the axes of which are arranged in a V-shape.

AMENDED CLAIMS
received by the International Bureau on 14 July 2017 (14.07.2017)

1. An apparatus for reducing stress on organisms caused by (alternating) electromagnetic fields (EMF), comprising a tube consisting of an electrically conducting material, said tube being axially subdivided into chambers centrally positioned within the tube between tube volumes adjacent to the tube ends and filled with quartz granulate and quartz sand, respectively, said tube volumes including quartz material differing from the quartz material within said chambers, one of said tube ends being adapted to be irradiated with (alternating) electromagnetic fields, characterized in that the quartz material of the tube volumes at one of the two tube ends has different grain sizes and different population of grain sizes compared to the other of the two tube ends, and in that the other tube end opposite said one tube end comprises at least one magnetic element and/ or at least one copper element.
2. The apparatus of claim 1, wherein the magnetic element is a magnetic beam element or a magnetic ring or a magnetic small tube.
3. The apparatus of claim 1 or 2, wherein the copper element is a thin wire configured as a clockwise or anti-clockwise wire coil.
4. The apparatus of claim 1, 2 or 3, wherein the surface of the copper element comprises a nano multiple coating.
5. The apparatus of claim 4, wherein the nano multiple coating comprises different materials containing CO₂, preferably additionally including metal portions.
6. The apparatus of one of claims 1 to 5, wherein the copper element is positioned directly at the other of the tubes ends, the magnetic element being positioned downstream (to the center of the tube) of the copper element.
7. The apparatus of one of claims 1 to 6, wherein the chambers of the tube are separated from one another by walls made from metal sheets preferably consisting out of copper, iron, zinc or aluminum.

8. The apparatus of one of claims 1 to 7, wherein preferably two or three chambers are axially positioned in the tube.
- 5 9. The apparatus of one of claims 1 to 8, wherein the chambers are filled with quartz sand and/or quartz sand mixtures, and preferably additionally with single crystal and/or rose quartz pebbles having preferably different sizes.
- 10 10. The apparatus of one of claims 1 to 9, wherein the central tube chamber is subdivided into two sub-chambers of the same size by means of partition walls out of carbonic material, preferably hard coal, coal, ash or potash.
11. A system for reducing the stress on organisms caused by (alternating) electromagnetic fields (EMF), comprising plural apparatuses of one of claims 1 to 10 combined into a bundle.
- 15 12. The system of claim 11, wherein the tubes of the apparatuses are aligned coaxially within the bundle and positioned substantially contacting one another.
- 20 13. The system of claim 11, wherein the longitudinal axes of the tubes of the apparatuses are arranged under an angle in such a kind that these axes meet at one point in front of said other of said tube ends.
14. The system of claim 13, wherein two apparatuses are provided, the axes of which are arranged in a V-shape.

Fig. 1

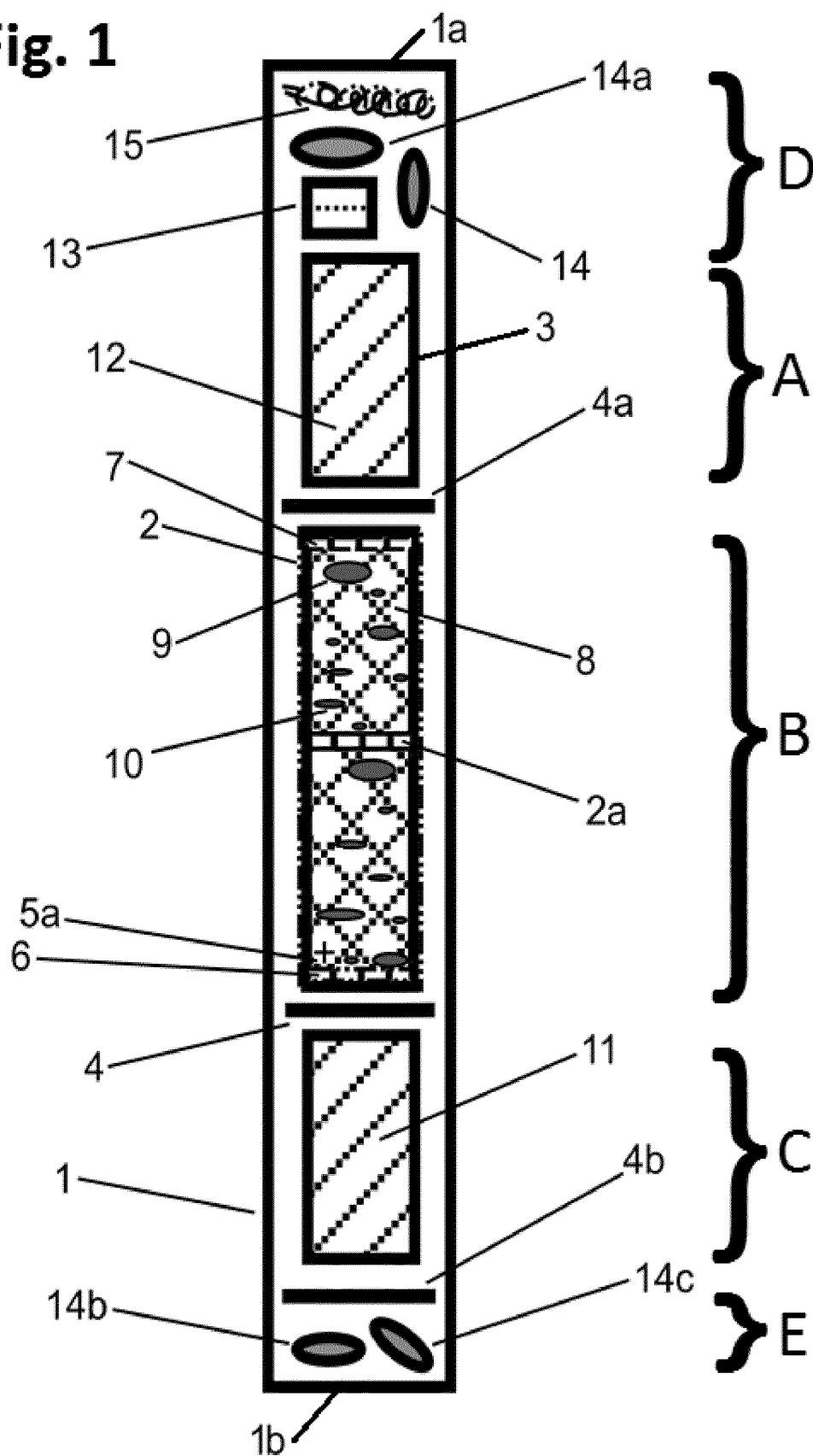


Fig. 2

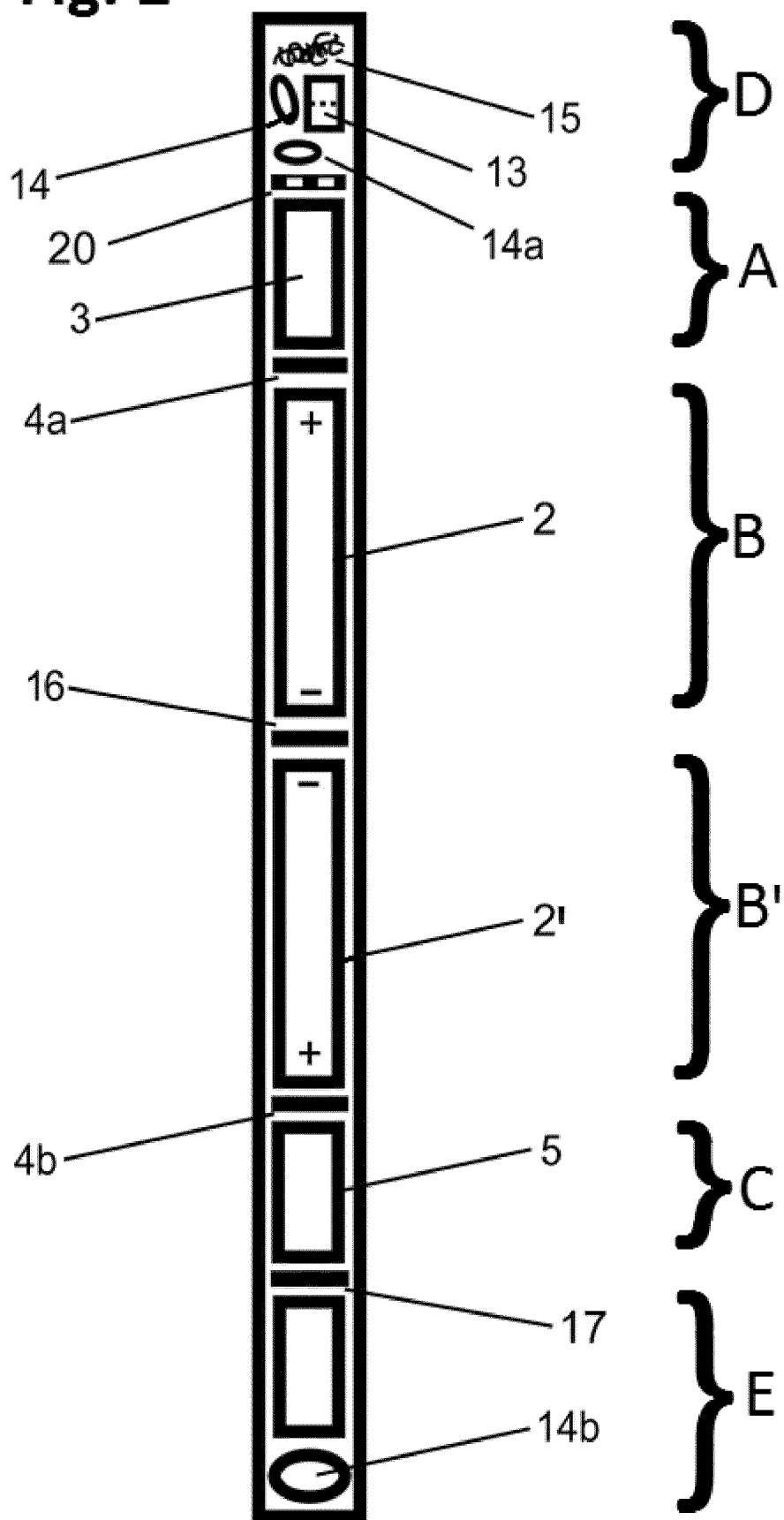


Fig. 3

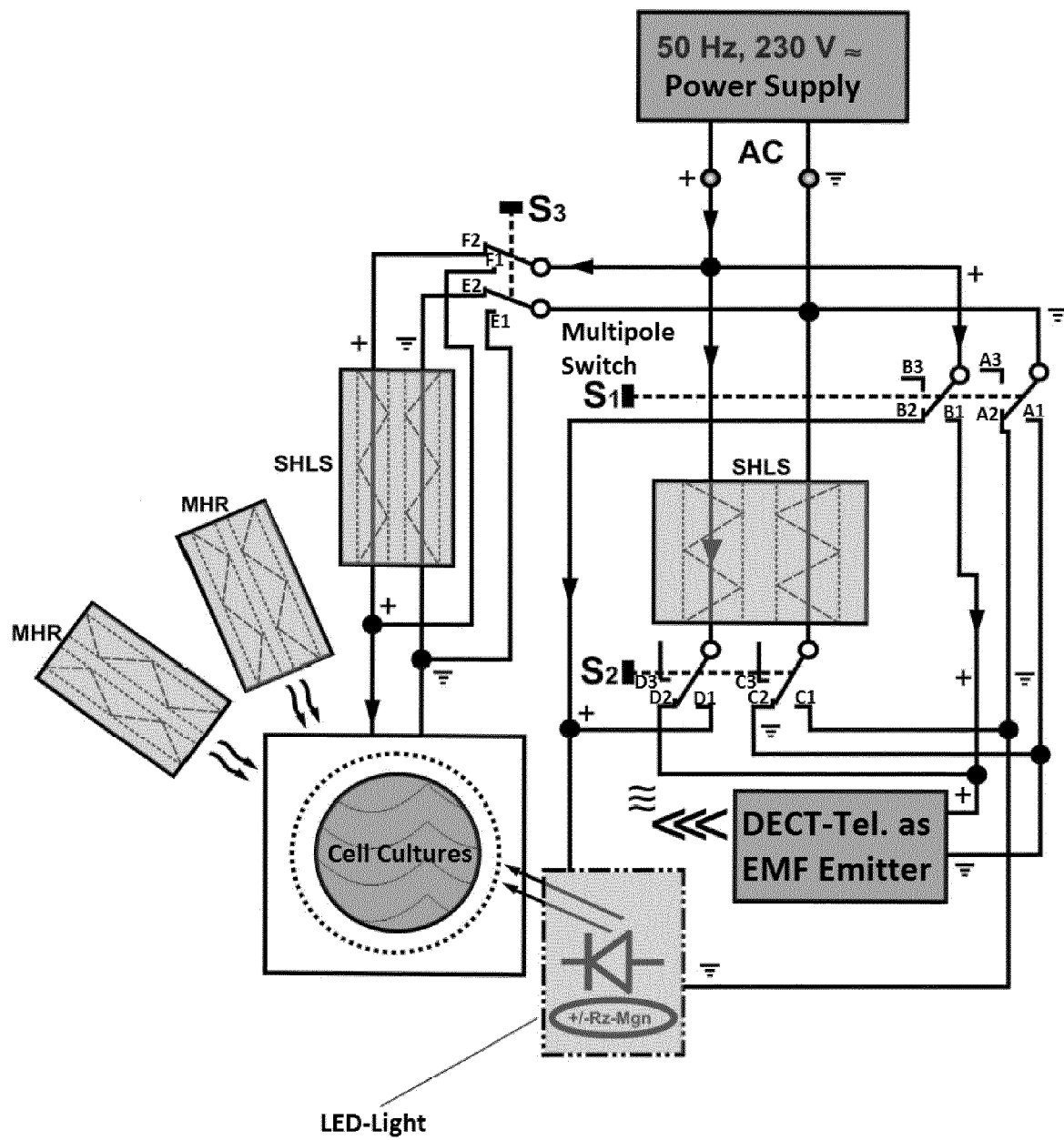


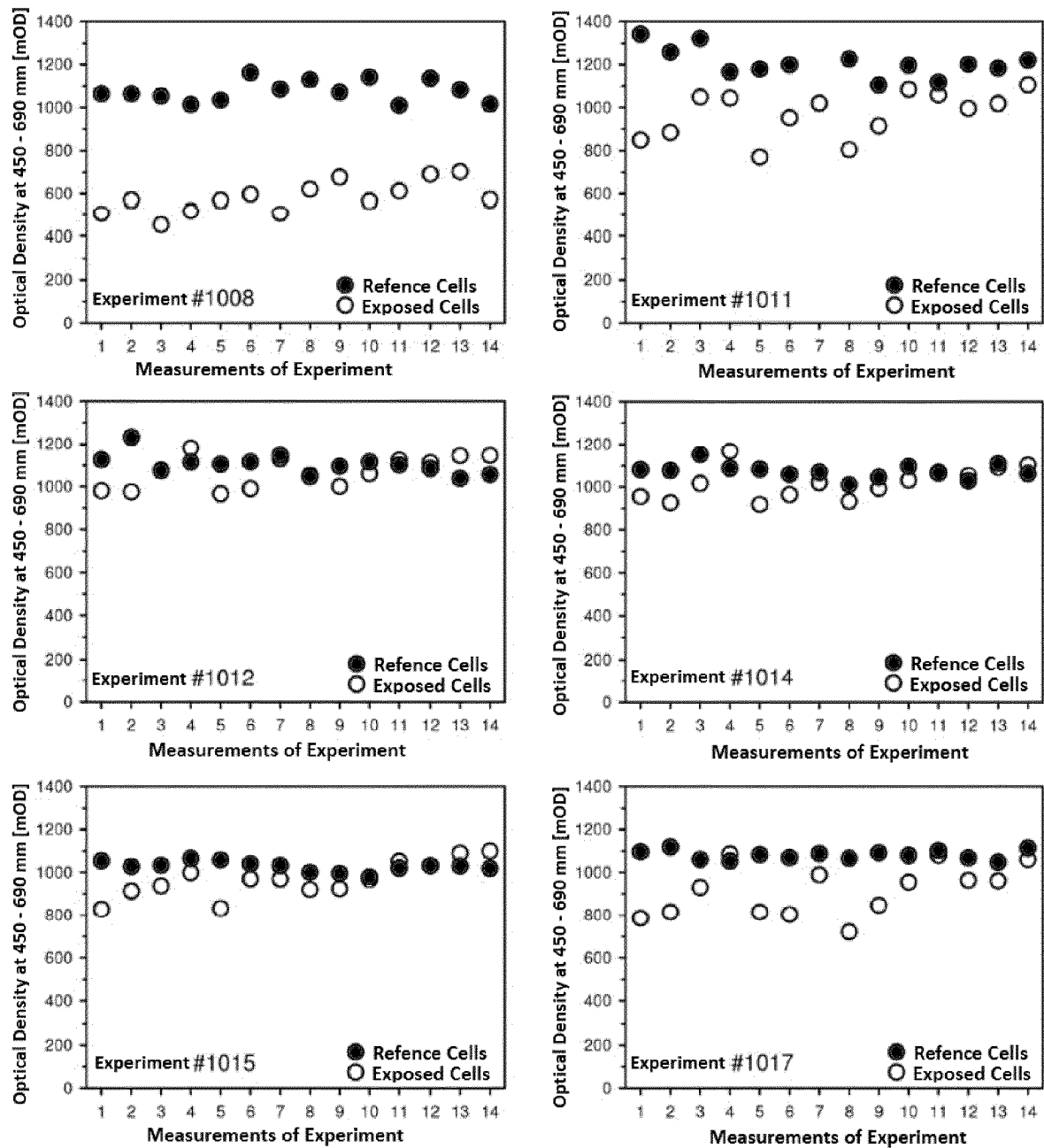
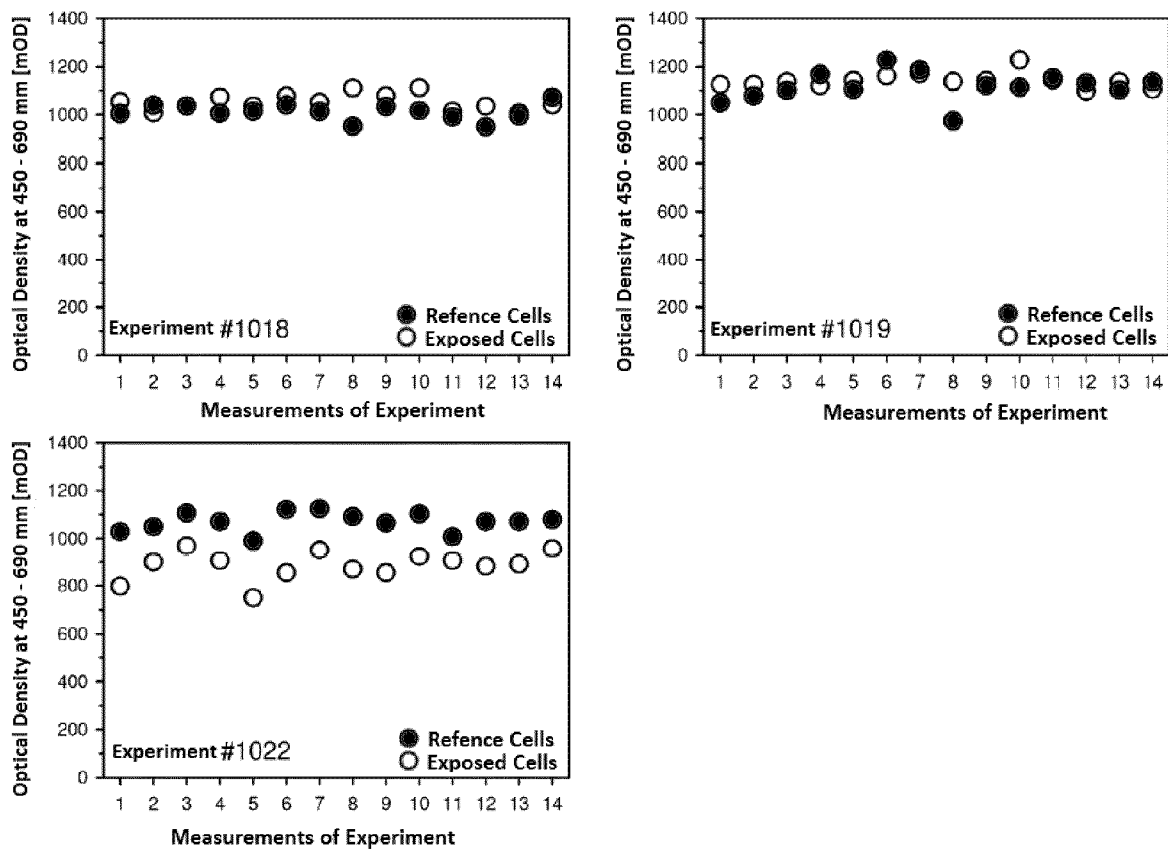
Fig. 4

Fig. 5

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2017/052703

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61N1/08 A61N1/16
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)
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 practicable, search terms used)

EP0-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	DE 197 13 097 A1 (KOENIG FLORIAN MEINHARD [DE]) 25 November 1999 (1999-11-25) cited in the application	1,7-14
Y	column 3, line 52 - column 4, line 10 column 4, line 33 - column 5, line 10 column 6, line 4 - line 41; figures 1, 2 -----	2-6
Y	US 2002/041185 A1 (KARITA MASAKAZU [JP]) 11 April 2002 (2002-04-11) paragraph [0013] - paragraph [0017] paragraph [0088] - paragraph [0089] -----	2
Y	US 2011/054582 A1 (DABNEY WARREN S [US] ET AL) 3 March 2011 (2011-03-03) paragraph [0035] - paragraph [0036] paragraph [0112] ----- -/--	3,4

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"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

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INTERNATIONAL SEARCH REPORT

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PCT/EP2017/052703

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 811 880 B1 (CLOUGH THOMAS J [US]) 2 November 2004 (2004-11-02) column 19, line 32 - line 57 column 20, line 26 - line 64 -----	4,5
Y	DE 299 14 932 U1 (LI CHIH HUNG [TW]) 25 November 1999 (1999-11-25) page 2, line 22 - line 30 page 3, line 15 - line 31; figure 3 -----	6

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2017/052703

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 19713097	A1	25-11-1999	NONE	

US 2002041185	A1	11-04-2002	JP 2002172177 A	18-06-2002
			US 2002041185 A1	11-04-2002

US 2011054582	A1	03-03-2011	US 2011054582 A1	03-03-2011
			US 2013226273 A1	29-08-2013
			US 2014172059 A1	19-06-2014

US 6811880	B1	02-11-2004	NONE	

DE 29914932	U1	25-11-1999	DE 29914932 U1	25-11-1999
			TW 424918 U	01-03-2001
