APPENDIX A

NOTE: This disposition is nonprecedential.

United States Court of Appeals
for the Federal Circuit

IN RE: HUPING HU, MAOXIN WU,
Appellants

2019-2104, 2019-2105, 2019-2106, 2019-2107

Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in Nos. 11/670,996, 11/944,631, 13/449,739, 13/492,830.

Decided: March 17, 2021

HUPING HU, MAOXIN WU, Stony Brook, NY, pro se.

MICHAEL S. FORMAN, Office of the Solicitor, United States Patent and Trademark Office, Alexandria, VA, for appellee Andrew Hirshfeld. Also represented by THOMAS W. KRAUSE, FARHEENA YASMEEN RASHEED.

Before NEWMAN, LOURIE, and STOLL, *Circuit Judges.*

NEWMAN, *Circuit Judge.*

Huping Hu and Maoxin Wu (collectively, "Hu" or "applicants") appeal four decisions of the U.S. Patent Trial and Appeal Board ("PTAB" or "Board"),[1] affirming the final rejections of claims based on subject matter described as "quantum entanglement." Hu defines quantum entanglement as the entanglement of "quantum spins of photons, electrons and nuclei." U.S. Patent Application No. 11/944,631 ("the '631 application"), ¶ 3.

Hu states that "quantum spins of photons, electrons and nuclei have now been successfully entangled in various ways for purposes of quantum computation and communication." *Id.* In the four patent applications on appeal, quantum entanglement is said to occur when fundamental particles such as photons or electrons interact and become linked; whereby when the particles are moved apart and separated by distance, the molecules' mechanical states (such as their spin, momentum, and polarization) remain coupled, and if the state of one entangled particle is changed, its distant linked particle is instantaneously affected.

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[1] *Ex Parte Hu*, No. 2018-007211, 2019 WL 2285560 (P.T.A.B. May 16, 2019) ("the '631 Application); *Ex Parte Hu*, No. 2018-003120, 2019 WL 2255472 (P.T.A.B. May 16, 2019) ("the '996 Application); *Ex Parte Hu and Wu*, No. 2018-003401, 2019 WL 2255476 (P.T.A.B. May 16, 2019) ("the '830 Application); *Ex Parte Hu*, No. 2018-003398, 2019 WL 2255475 (P.T.A.B. May 16, 2019) ("the '739 Application) . The four Board opinions are substantially identical in analysis.

The U.S. Patent and Trademark Office ("PTO") summarizes the concept of quantum entanglement as the ability "to change the characteristics of one substance via the manipulation of a completely physically separate sub-stance." PTO Br. at 4. Hu states that the inventors "have harnessed and developed quantum entanglement and non-local effects into useful technologies to serve the mankind in many areas, such as communication, engineering, health, medicine and recreation." Hu Br. at 5.

The four patent applications at issue are directed to various methods or apparatus for producing or using quantum entanglement. The patent applications are as follows:

U.S. Patent Application No. 11/944,631, filed Nov. 25, 2007 ("the '631 application")

The '631 application is titled "Method and Apparatus for Producing Non-Local Physical, Chemical and Biological Effects." The application states that it concerns the "method of producing . . . effects on physical, chemical and/or biological systems through quantum entanglement mediated processes, to apparatus for such productions, and to method of using the non-local effects for beneficial purposes." '631 application at ¶ 2. The '631 application states that: "One benefit of the present invention is that the physical and/or chemical properties such as pH values, temperatures and gravities of two or more quantum-entangled systems separated by arbitrary distances can be, in one broad embodiment, manipulated or modified for a desired purpose." *Id.* at ¶ 23.

The '631 application describes the method whereby, as a first step, a "certain volume of a liquid, gel, gas, solid or a composition thereof such as water" is quantum entangled by being "simply left alone at a desired temperature for a certain period of time before use." *Id.* at ¶ 46. This material is then divided into the target substance in a container at location A, and an originating substance in another container at location B. *Id.* at ¶¶ 47–49. The originating substance is then manipulated, and the effects are manifested in the target substance through quantum entanglement. *Id.* at ¶ 49. Claim 1 is deemed representative:

> 1. A method of producing a non-local effect in a target substance through manipulating an originating substance and detecting said nonlocal effect which comprises the steps of:
>
> selecting a substance which comprises said tar-get substance and said originating substance;
>
> generating a plurality of quantum entanglements within a plurality of quantum entities in said substance by irradiating said substance with magnetic pulse, laser light or microwave, or letting said substance sit for at least thirty days;
>
> separating said substance into said target substance and said originating substance;
>
> positioning said target substance at a first location in a first stable environment and said originating substance at a second location in a second stable environment;
>
> cooling, heating or adding a third substance to said originating substance; and

> detecting with a high- precision instrument a change in weight, temperature and/or pH value of said target substance;
>
> whereby said non-local effect is produced through a non-local process mediated by said quantum entanglements and said non-local effect is said change in weight, temperature and/or pH value of said target substance.

J.A. 79. The '631 specification provides an example whereby the container with the originating substance is chilled by placement in liquid nitrogen, and the pH of the target substance in a container in another room is altered, due to quantum entanglement. '631 Application at ¶ 49.

The examiner rejected all of the '631 claims on appeal, *viz.* claims 1, 7, 9, 10, 16, 18, 19, 25, 27, and 70–81, on grounds of 35 U.S.C. § 101 as inoperative, and 35 U.S.C. § 112 as not enabled. The examiner stated to the Board:

> Appellant's disclosure and claimed invention that the weight, temperature and/or chemical properties (pH value) of an isolated target sub-stance (e.g. water) can be changed by manipulating a separate "originating substance" (e.g. water) that is physically separated and isolated from the "tar-get substance" is not credible and consequently fails the "useful invention" (utility) requirement of 35 U.S.C. 101 . . . Appellant's experiments and experimental data at paragraphs 83–99 of the writ-ten description fails to adequately disclose and describe the claimed subject matter in such a way as to

> enable one of ordinary skill in the art to practice the invention as claimed without undue experimentation. Moreover, the invention as claimed and described is incapable of functioning as claimed as set forth above; accordingly, the application fails to meet the enablement requirement.

'631 Application, Examiner's Answer at 2, 5. The Board affirmed, and Hu appeals, stating that the Board erred in law and fact.

U.S. Patent Application No. 13/449,739, filed April 18, 2012 ("the '739 application")

The '739 application is titled "Method and Apparatus for Producing Quantum Entanglement and Non-Local Effects of Substances," and is particularly directed to anesthetic and other medication effects. The specification describes the benefits of the claimed method:

> One benefit of the present invention is that a sub-stance such as a medication can be repeatedly used to obtain a beneficial effect on a biological system without the said biological system physically consuming the said substance. A second benefit of the present invention is that the beneficial effect of a substance such as a medication can be, in one broad embodiment, delivered to a biological system such as a patient from a remote location of arbitrary distance. A third benefit of the present invention is that two parts of a quantum -entangled medium with one part being physically at one location and

> a second part being physically at another location of arbitrary distance can be, in one broad embodiment, used to transmit an encoded message.

'739 application at ¶ 24. The '739 application presents the example of administration of a general anesthetic by "applying magnetic pulses to a biological system such as the human brain when a substance such as a general anesthetic was placed in between caused the brain to feel the effect of said anesthetic for several hours after the treatment as if the test subject had actually inhaled the same." *Id.* at ¶ 9. Figure 1A is presented as illustrative of administration of an anesthetic:

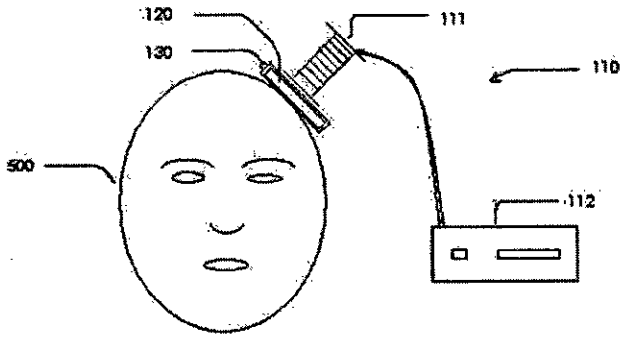

Fig 1A

The anesthetic is placed in a container outside the patient's head, and the container is attached to a magnetic coil connected to an audio system such as a radio. '739 application at ¶¶ 42–43. The Board described the method as "directing music toward that brain through a container of that anesthetic." '739 Application, Board Op. at *3. Claim 1 is deemed representative:

1. An apparatus for producing a plurality of quantum entanglements between a first plurality of quantum entities in a chemical substance and a second plurality of quantum entities in a human or animal, a non-local chemical effect of said human or animal on said chemical substance through said plurality of quantum entanglements and/or a non-local biological effect of said chemical substance on said human or animal through said plurality of quantum entanglements which comprises:

a quantum -entanglement generating source which emits a plurality of quantum-entangling photons or magnetic pulses when said source operates;

a first container for holding said chemical substance disposed next to said source; and

said chemical substance in said container;

such that when said first container is filled with said chemical substance is disposed next to said human or animal, and said source operates, said photons or magnetic pulses interact with said first plurality of quantum entities in said chemical substance and said second plurality of quantum entities in said human or animal generating said plurality of quantum entanglements, said non-local chemical effect through said plurality of quantum entanglements which comprises an effect of said human or animal on a chemical property or process of said chemical substance and/or said biological non-local effect through said plurality of quantum entanglements which comprises an effect of

> said chemical substance on a biological property or process of said human or animal.

J.A. 1990.

The Board affirmed the rejection of all of the claims of the '739 application, i.e., claims 1–3, 6–8, 12, and 13 under 35 U.S.C. § 112 on grounds of written description, indefiniteness, and lack of enablement. Reviewing the application, the Board stated:

> [D]ue to the absence of any known scientific principles explaining how Appellant's invention could possibly operate in this manner, the absence of any cogent explanation in Appellant's Specification regarding the general principals or mechanisms causing this to occur, and the absence of any verifiable test data reasonably attributable to the purported result, the Examiner reasonably characterized Appellant's Specification as failing to satisfy the enablement requirement. . . . We find no explanation as to why ordinary and conventional audio produces any meaningful quantum entanglements and, even if it did, why they would have any meaningful effects on the pharmacological interaction between an anesthetic agent and the brain. . . . We are also not apprised of any data logically evincing such a pharmacological interaction has actually occurred.

'739 Application, Board Op. at *3 (footnote omitted).

The Board also affirmed the rejection under § 101, stating:

> The Examiner concludes claim 1 is directed to a natural phenomenon of generating quantum entanglements which, along with their interactions with a subject, are natural results of magnetic pulses or photons, and therefore falls within a judicial exception to subject matter eligible for patenting. . . . The Examiner considers the source and container limitations and determines they lack the particularity necessary for a machine, transformation, or useful application to bring the claim within the ambit of subject matter that is a patent-eligible practical application. . . . The Examiner's analysis, summarized above, is consistent with PTO guidance and stands essentially uncontroverted. Accordingly, we adopt the Examiner's position and sustain the § 101 rejection on the basis set forth by the Examiner.

Id. at *7, *9 (footnote omitted).

U.S. Patent Application No. 13/492,830, filed June 9, 2012) ("the '830 application")

The '830 application is titled "Method and Apparatus for Producing and Detecting Non-Local Effects of Sub-stances," and, like the other applications, recites the "method for communicating between two remote locations through two parts of a quantum-entangled medium with one part being applied to a responsive target such as a particular biological, chemical or other system at one location and a second part being subsequently entangled with a particular substance representing a particular message through quantum -entangling members

such as photons at a remote location of arbitrary distance." '830 application at ¶ 25. The '830 application describes non-local effects of medications, and presents the example where the physiological effects of the drug Primatene, a medication that includes a heart stimulant, are experienced by a remotely located person who did not consume the drug, based on microwave activated quantum entanglement. The specification provides the example where a solution of Primatene, containing the heart stimulant ephedrine, is exposed to microwave radiation in one room, and effects are felt by a per-son in a room about 50 feet away "in the form of rapidly increased heart rate for at least four (4) minutes in the range of 1-6 points (beats) or 1.5% - 10% above the fluctuating ranges of the baselines." *Id.* at ¶¶ 102–103, 120. Claim 5 is deemed representative:

> 5. A method of producing and detecting a second plurality of quantum entanglements between a third plurality of quantum entities in a first tar-get and a fourth plurality of quantum entities in a second target, a first non-local effect of said second target on said first target through said second plurality of quantum entanglements and/or a second nonlocal effect of said first target on said second target through said second plurality of quantum entanglements which comprises the steps:
>
> selecting said first target which comprises a first chemical substance, human or animal at a first location;

selecting said second target which comprises a second chemical substance, human or animal at a second location;

providing a first water-based medium at said first location and a second water-based medium at said second location, a first plurality of quantum entities in said first medium being in a first plurality of quantum entanglements with a second plurality of quantum entities in said second medium;

providing a detecting means for detecting said second plurality of quantum entanglements, said first non-local effect and/or said second non-local effect when said detecting means operates;

causing said first target to interact with said first water-based medium through a first contact or radiation from a first photon or magnetic pulse generating source;

causing said second target to interact with said second water-based medium through a second con-tact or radiation from a second photon or magnetic pulse generating source; and detecting said second plurality of quantum entanglements, said first non-local effect and/or said second non-local effect;

whereby said second plurality of quantum entanglements between said third plurality of quantum entities in said first target and said fourth plurality of quantum entities in said second target is generated through said interaction between said third plurality of quantum entities in said first target and said first plurality of quantum entities in said first water -based medium and said interaction between said fourth plurality of

> quantum entities in said second target and said second plurality of quantum entities in said second water-based medium, and detected through said detecting means; and said first non-local effect of said second target on said first target, comprising a first effect of said second target on a first physical, chemical or biological property or process of said first target, and/or said second non-local effect of said first target on said second target, comprising a second effect of said first target on a second physical, chemical or biological property or process of said second target, are generated through said second plurality of quantum entanglements between said third plurality of quantum entities in said first target and said fourth plurality of quantum entities in said second target and detected through said detecting means.

J.A. 4391–93.

The PTAB held claims 5, 7–9, 11, and 12, all of the claims on appeal of the '830 application, unpatentable un-der. § 101 as inoperative and under § 112 as not in compliance with the written description requirement and not enabled. The Board stated:

> We agree with the Examiner's analysis, which raised reasonable doubts as to operability of Appellants' invention and the Specification's compliance with the enablement requirement . . . . The Specification provides a few examples of suitable sources and one example of a

> detecting method. However, claim 5 encompasses subject matter wherein anything capable of generating photons or magnetic pulses for causing quantum entanglements, whether known or unknown, described in Appellants' Specification or not, can be the source. . . . Even if we were to set aside the question of operability and assume that Appellants have demonstrated possession of a limited number of sources and at least one detecting technique, the scope of the right to exclude that would be granted by claim 5 would far exceed Appellants' contribution to the art—preempting the future before it has arrived . . . .

'830 Application, Board Op. at *4, *8. The Board adopted the Examiner's reasoning, and rejected the claims.

U.S. Patent Application No. 11/670,996, filed February 4, 2007 ("the '996 application")

The '996 application is titled "Method and Apparatus for Producing Quantum Entanglement and Non- Local Effects of Substances" and describes remote effects and producing quantum entanglements with laser light, reciting the following experiment:

> [L]aser light from the laser first passed through the large glassware filled with 200 ml tap water and then through the small glassware filled with a sub-stance . . . located about 300 cm away. . . . After 30 min exposure to the laser light, a test subject

consumed the treated tap water without being told the details of the experiments and report the biological and/or chemical effects felt for the next several hours.

'996 application at ¶ 79. Claim 1 is deemed representative:

1. A method of producing a plurality of quantum entanglements between a first plurality of quantum entities in a first target and a second plurality of quantum entities in a second target, a first non-local effect of said second target on said first target through said plurality of quantum entanglements and/or a second non-local effect of said first target on said second target through said plurality of quantum entanglements which comprises the steps of:

selecting said first target ,which comprises a first chemical substance, water-based medium, human or animal;

selecting said second target which comprises a second chemical substance, water-based medium, human or animal;

providing a photon or magnetic pulse generating source, which emits a plurality of photons or magnetic pulses as quantum entanglement generating members when said source operates;

disposing said first target between said source and said second target or said second target be-tween said source and said first target; and

driving said source to emit said photons or magnetic pulses which interact with said

first plurality of quantum entities in said first target and said second plurality of quantum entities in said second target;

whereby said plurality of quantum entanglements between said first plurality of quantum entities in said first target and said second plurality of quantum entities in said second target is generated through said interactions of said photons or magnetic pulses as said quantum entanglement generating members with said first plurality of quantum entities in said first target and said second plurality of quantum entities in said second target; and said first non-local effect of said second target on said first target, comprising a first non-local effect of said second target on a first physical, chemical or biological property or process of said first target, and/or said second non-local effect of said first target on said second target, comprising a second non-local effect of said first target on a second physical, chemical or biological property or process of said second target, are generated through said plurality of quantum entanglements.

J.A. 5166–67. The Board held claims 1, 3–7, 11, 14, 18, 19, 23, 24, 32–34, 36, 37, 44 and 46 of the '996 application (all of the claims on appeal) unpatentable under § 101 as inop-erative and § 112 as not enabled. The Board held that the described remote effects attributed to quantum entangle-ment were not substantiated by adequate evidence to meet the requirements of patentability. The Board also ex-pressed skepticism as to the scientific premise of quantum entanglement.

DISCUSSION

The Board considered each application separately, and issued separate opinions. The applications were not all in the same art unit, and were processed by two examiners. We consolidated the four appeals for briefing and argument.

Hu argues that the examiners and the Board erred in examination procedure, for the burden of establishing un-patentability is on the PTO, and requires evidence based on prior art, knowledge, and analytic reasoning. Hu states that this burden is not met by skepticism and ignorance. Hu points to the absence of prior art, the absence of contrary knowledge, and the absence of contrary evidence.

Hu is correct that the burden is on the PTO to establish that the standards of patentability are not met. *See* 35 U.S.C. § 102 ("A person shall be entitled to a patent un-less . . . ."). In implementation of the patent statute, on examination the PTO bears the initial burden of presenting a prima facie case of unpatentability. If that burden is not met, patentability is established. If it is met, the burden shifts to the applicant, to come forward with evidence and argument to rebut the prima facie case. *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). In the back-and-forth of argument and explanation that characterizes patent examination, the ultimate burden of showing unpatentability is on the PTO, as the statute requires. *In re Duvi*, 185 F.3d 885 (Fed. Cir. 1999) ("[T]he ultimate burden of establishing unpatentability is with the PTO."); *see also In re Oetiker*, 977 F.2d 1443, 1449 (Fed. Cir. 1992) (Plager, J., concurring) ("An applicant for a patent is

entitled to the patent unless the application fails to meet the requirements established by law. . . . The burden is on the Com-missioner to establish that the applicant is not entitled under the law to a patent. . . . [W]hen obviousness is at is-sue, the examiner has the burden of persuasion and there-fore the initial burden of production. Satisfying the burden of production, and thus initially the burden of persuasion, constitutes the so-called prima facie showing. Once that burden is met, the applicant has the burden of production to demonstrate that the examiner's preliminary determination is not correct. The examiner, and if later involved, the Board, retain the ultimate burden of persuasion on the issue. . . . Thus on appeal to this court as in the PTO, the applicant does not bear the ultimate burden of persuasion on the issue.").

In three of the four applications no references were cited; in the '739 application the examiner rejected claims 1, 6, and 12 under § 102(b) as anticipated by a reference of Kiontke. In all four applications the examiners and the Board stated their reasons for doubting the efficacy of the claimed subject matter. An examiner summarized that the experimental report of changing the temperature or pH of one substance by manipulating a physically separate and distant second substance "violates the first law of thermo-dynamics," is "contrary to traditional understanding of chemistry," and "violates the classical laws of physics." '631 Application, Examiner's Answer at 3–4, 9. The examiner stated that the scientific principle of conservation of mass was violated by the asserted change of weight inside a closed container:

> Here appellant asserts that the weight of the isolated target substance in a closed container changes over time even though no more water is added or subtracted. With the force of gravity from earth a constant for a particular location, appellant's assertion that the weight of the target sub-stance changes while at the same location without the addition or subtraction of water (or other matter) violates the established scientific principle of conservation of mass. Accordingly, appellant's assertions and claims regarding a change in weight of the target substance are not credible and the claimed invention lacks utility.

'631 Application, Examiner's Answer at 3. The examiner further stated that the enablement requirement was not met:

> Appellant's experiments and experimental data at paragraphs 83–99 of the written description fails to adequately disclose and describe the claimed subject matter in such a way as to enable one of ordinary skill in the art to practice the invention as claimed without undue experimentation. Moreover, the invention as claimed and described is incapable of functioning as claimed as set forth above; accordingly, the application fails to meet the enablement requirement.

Id. at 5. Hu responded that the examiner had no evidence or other support for these arguments, which are mere speculation and without foundation, and thus contrary to the rules of patentability, as well as

not conforming to the requirements of patent examination and the placement of the burden of proof.

The Board sustained the rejection, stating that "the Examiner reasonably characterized Appellant's invention as being of an incredible nature." '631 Application, Board Op. at *4. Precedent supports such an examination rejection, in an appropriate case. *See In re Cortright*, 165 F.3d 1353, 1357 (Fed. Cir. 1999) ("The PTO may establish a reason to doubt an invention's asserted utility when the written description 'suggest[s] an inherently unbelievable undertaking or involve[s] implausible scientific principles.'" (quoting *In re Brana*, 51 F.3d 1560, 1566 (Fed. Cir. 1995)) (alterations in original)).

The Board stated its skepticism of the claimed invention's operability, citing the absence of support in scientific principle and credible data:

> We have no doubt that if Appellant's invention is able to use quantum entanglement to alter the weight, temperature and/or pH value of a *first* sub-stance by modifying only some other *second* sub-stance that had previously been exposed to "magnetic pulses, laser light, or microwave," with the first substance it would be both groundbreaking and revolutionary . . . However, due to the absence of any known scientific principles explaining how Appellant's invention could possibly operate in this manner, the absence of any cogent explanation in Appellant's Specification regarding the general principals [sic] or

> mechanisms causing this to occur, and the absence of any verifiable test data reasonably attributable to the purported result, the Examiner reasonably characterized Appellant's invention as being of an incredible nature.

'631 Application, Board Op. at *4 (emphasis in original) (footnote omitted). We agree that the Board reasonably placed weight on the absence of scientific explanation of the announced effects of magnetic pulse, laser light, or micro-wave radiation, and "why spin or any other quantum property of entangled particles would bring about these types of changes in a remote, 'non-local' portion of a sample or substance." *Id.* The Board concluded:

> The Examiner provided a detailed analysis, citing various evidentiary sources, including, but not limited to, those submitted by Appellant, in considering the question of enablement, and the question of whether the claimed invention contravenes established scientific principles, as that question relates to the utility requirement . . . . We agree with the Examiner's analysis, which raised reasonable doubts as to operability of Appellant's invention and the Specification's compliance with the enablement requirement.

Id. at *3.

Hu argues on appeal that no authority supports the Board's theory that the claimed inventions are contrary to scientific principles and

that the Board cited no authority for its conclusion. Hu provided twenty-five scientific publications by physicists concerning quantum entanglement, and five publications authored by Huping Hu and Maoxin Wu concerning observations such as those set forth in their patent applications. Hu states that the examiners and the Board "resort[ed] to speculation, unfounded assumptions or hindsight reconstruction." Hu Br. at 54 (quoting *In re Warner*, 379 F. 2d 1011, 1017 (C.C.P.A. 1967)). Hu states that physicists knowledgeable in the science of quantum mechanics would understand the principles of quantum entanglement, although the PTO examiners and the Board did not.

An examiner informed the Board that "the concept of quantum entanglement *per se* is not being disputed." '996 Application, Examiner's Answer at 7. An examiner observed that "[q]uantum entanglement has been observed momentarily in highly controlled experiments involving photons, electrons and more recently macroscopically in diamonds . . . conducted under extreme conditions that last for fractions of a second." '631 Application, Examiner's Answer at 11, 16. The examiners' rejections were based on skepticism concerning Hu's application of quantum entanglement to produce the effects Hu described and claimed.

The Board found that the scientific articles cited by Hu did not provide a scientific basis for Hu's reports of physical or chemical or biological behavior attributed to quantum entanglement. We agree that this finding comports with the cited scientific articles.

The Board did not err in requiring Hu to establish the operability of his asserted discoveries, in view of the conflict with ordinary experience as well as with established scientific principles. *See Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1359 (Fed. Cir. 1999) (holding claims inoperable because they violate the principle of conservation of mass); *Newman v. Quigg*, 877 F.2d 1575 (Fed. Cir. 1989) (describing device as an operating perpetual motion machine violates the first or second law of thermodynamics); *In re Swartz* , 50 F. Appx 422, 424–25 (Fed. Cir. 2002) (claims to process said to implement "cold fusion" rejected as directed to an "unattainable result"). In *Swartz* the Board found that "results in the area of 'cold fusion' were irreproducible as of the filing date of this application, and that those skilled in this art would 'reasonably doubt' the asserted utility and operability of cold fusion." *Id.* at 424.

The PTO, as the nation's guardian of technologic invention, must be receptive to unusual concepts, for the core of invention is unobviousness. However, concepts that strain scientific principles are properly held to a heightened standard, typically measured by reproducibility of results. Here the Board was presented with an apparent departure from conventional scientific understanding, and the Board appropriately sustained the examiners' requirements for experimental verification. The Board applied a reasonable and objective standard, and acted reasonably in sustaining the examiners' requirements. Should further investigation bring

peer recognition and verifiable results, the PTO and the scientific community would surely be interested.[2]

We affirm the Board's holding, as to all four patent applications, that there is not scientific support for the claimed methods or apparatus, and that the experimental data and explanations are inadequate to support the novel results and scientific principles asserted by Hu. "When a claim requires a means for accomplishing an unattainable result, the claimed invention must be considered inoperative as claimed and the claim must be held invalid under either § 101 or § 112 of 35 U.S.C." *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 956 (Fed. Cir. 1983); *see also In re Milligan*, 101 F.3d 715 (Fed. Cir. 1996) ("[A]s we conclude as a matter of law that those of reasonable skill in the art would not find Milligan's contentions of utility credible, we must affirm [on the ground] of the lack of utility . . . .").

CONCLUSION

The Board's decisions in the four applications on appeal are affirmed, rejecting all of the claims on appeal.

AFFIRMED

COSTS

No costs.

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[2] There are more things in heaven and earth, Horatio, Than are dreamt of in your philosophy.
W. Shakespeare, HAMLET, Act 1, Scene 5, ll. 166–67.

APPENDIX B

(C.A.J.A. 15-25)

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HUPING HU

Appeal 2018-007211
Application 11/944,631
Technology Center 3700

Before: CHARLES N. GREENHUT, JEFFREY A. STEPHENS, and ALYSSA A. FINAMORE, *Administrative Patent Judges.*

GREENHUT, *Administrative Patent Judge.*

DECISION ON APPEAL[1]

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[1] Related appeals are: 2018-003398 in application 13/449,739; 2018-003401 in application 13/492,830; and 2018-003120 in application 11/670,996.

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from a rejection of claims 1, 7, 9, 10, 16, 18, 19, 25, 27, and 70-81. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

CLAIMED SUBJECT MATTER

The claims are directed to a method for producing non-local physical, chemical, and biological effects. Claim 1, reproduced below, is illustrative of the claimed subject matter:

> Claim 1. A method of producing a non-local effect in a target substance through manipulating an originating substance and detecting said non-local effect which comprises the steps of:
>
> selecting a substance which comprises said target substance and said originating substance;
>
> generating a plurality of quantum entanglements within a plurality of quantum entities in said substance by irradiating said substance with magnetic pulse, laser light or microwave, or letting said substance sit for at least thirty days;
>
> separating said substance into said target substance and said originating substance;
>
> positioning said target substance at a first location in a first stable environment and said originating substance at a second location in a second stable environment;

cooling, heating or adding a third substance to said originating substance; and

detecting with a high-precision instrument a change in weight, temperature and/or pH value of said target substance;

whereby said non-local effect is produced through a non-local process mediated by said quantum entanglements and said non-local effect is said change in weight, temperature and/or pH value of said target substance.

REJECTIONS

Claims 1, 7, 9, 10, 16, 18, 19, 25, 27 and 70-81 are rejected under 35 U.S.C. § 101 because the disclosed invention is inoperative and therefore lacks utility, and also under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

OPINION

Ancillary matters

Objection of Amendment under 35 U.S.C. § 132(a)

Appellant argues "this objection is appealable since the Examiner's new matter objection to the specification is related to and accompanied by Examiner's claim rejection under 35 U.S.C. § 112, first paragraph." App. Br. 52 (citing MPEP §§ 608.04(c), 2163.06). Although the Examiner made a rejection under§ 112, first paragraph, that rejection is based on the enablement requirement and is not of

the type necessitated by introducing new matter into the claims-typically premised on the written description requirement of§ 112, first paragraph. *See, e.g., In re Lukach,* 442 F.2d 967 (CCP A 1971) (explaining new or amended claims which introduce elements or limitations which are not supported by the as-filed disclosure violate the written description requirement). We recognize that the Examiner did cite certain shortcomings in Appellant's experimental results, as originally filed, as part of the Examiner's original analysis concerning enablement. Final Act. 12. However, for purposes of the enablement analysis the Examiner has given Appellant the benefit of considering the amended data despite the Examiner's objection to that data as new matter. In other words, the analysis of Appellant's experimental results in the enablement rejection is independent of the issue of whether the amended results constitute new matter. Further, as discussed below, the entry or non-entry of the amendments would not affect the outcome of our decision. Thus, we are not apprised as to how the new matter objection sufficiently relates to a rejection presently before us so as to bring that objection within our jurisdiction. Accordingly, we do not reach the merits of the objection herein.

Alleged New Ground of Rejection

Appellant contends "the Examiner's Answer introduces **New Ground of Rejection** by way of Wands *[In re Wands,* 858 F.2d 731 (Fed. Cir. 1988)] factors analysis." Reply Br. 5. First, although the Examiner introduced express citations to *Wands* and the various enumerated factors listed in MPEP § 2164.0l(a) *(see* Ans. 8-9), we are not apprised of any significant substantive changes in the Examiner's

analysis that prejudiced Appellant. The Examiner provided a very thorough and detailed analysis in support of the enablement rejection that touched on a variety of the *Wands* factors even if they were not mentioned specifically by name or provided with a specific citation. *See* Final Act. 9-37. Second, Appellant elected to file a reply brief addressing the merits of the Examiner's position and, in doing so, waived "any arguments that a rejection must be designated as a new ground of rejection." *See* 37 C.F.R. § 41.40(a). Appellant's Reply Brief provided sufficient opportunity to respond to the merits of the Examiner's rejection. *See, e.g., In re Anderson,* 662 F. App'x 958 (Fed. Cir. 2016) (nonprecedential). Accordingly, we do not reach the issue of whether the Examiner's Answer included an undesignated new grounds of rejection.

Enablement under § 112, first paragraph, and utility under § 101

For each of these rejections, Appellant argues the claims as a group (App. Br. 9-52), for which claim 1 is representative under 37 C.F.R. § 41.37(c)(1)(iv). With regard to the questions of enablement and utility, our reviewing court has summarized:

> The questions of whether a specification provides an enabling disclosure under § 112, ¶1, and whether an application satisfies the utility requirement of § 101 are closely related. To satisfy the enablement requirement of § 112, ¶1, a patent application must adequately disclose the claimed invention so as to enable a person skilled in the art to practice the invention at the time

> the application was filed without undue experimentation. The utility requirement of§ 101 mandates that the invention be operable to achieve useful results. Thus, if the claims in an application fail to meet the utility requirement because the invention is inoperative, they also fail to meet the enablement requirement because a person skilled in the art cannot practice the invention. The how to use prong of section 112 incorporates as a matter of law the requirement of 35 U.S.C. § 101 that the specification disclose as a matter of fact a practical utility for the invention. Lack of utility is a question of fact, and the absence of enablement is a legal conclusion based on underlying factual inquires.

In re Swartz, 232 F. 3d 862, 863 (Fed. Cir. 2000) (quotations and internal citations omitted); *see also* MPEP § 2164.07.

Paragraphs 8 and 9 of Appellant's Specification summarize the invention as follows:

> [Para 8] The subject invention is therefore based on my realizations that (1) quantum entanglement means genuine interconnectedness and inseparableness of once interacting quantum entities and can be directly sensed and utilized by the entangled quantum entities; (2) quantum entanglement can persist in biological, chemical and physical systems at room and higher temperatures despite of quantum decoherence; and (3) quantum entanglement

> can influence chemical and biochemical reactions, other physical processes and micro- and macroscopic properties of all forms of matters. Therefore, it can be harnessed and developed into useful technologies to serve the mankind in many areas such as communication, engineering, health, medicine and recreation.
>
> [Para 9] For example, using the apparatus and method developed in this invention I have discovered that the pH value of water in a detecting reservoir can be non-locally affected through manipulating water in a remote reservoir quantum-entangled with the water in the detecting reservoir.

The Examiner provided a detailed analysis, citing various evidentiary sources, including, but not limited to, those submitted by Appellant, in considering the question of enablement, and the question of whether the claimed invention contravenes established scientific principles, as that question relates to the utility requirement. *See* Final Act. 3-37; Ans. 11-39. We agree with the Examiner's analysis, which raised reasonable doubts as to operability of Appellant's invention and the Specification's compliance with the enablement requirement.

In response, Appellant cites, *inter alia,* paragraphs 47-49 of the Specification (App. Br. 43-44), which, along with Figure 1, are reproduced below to summarize an embodiment of Appellant's invention:

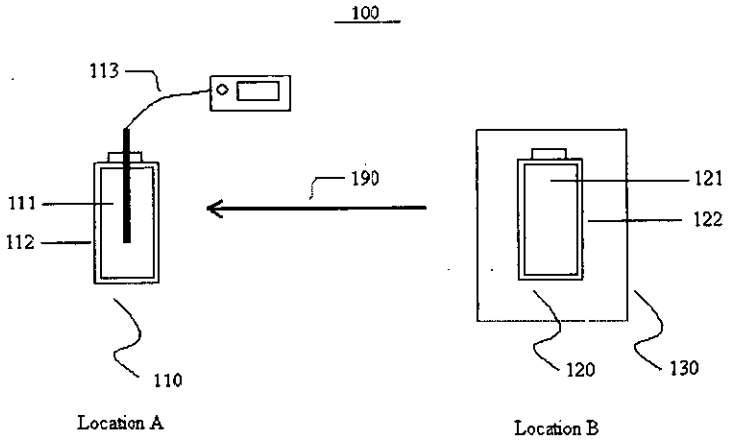

FIG.1

[Para 47] Considering first FIG. 1, the apparatus 100 of the present invention in one embodiment includes a target 110, a source 120 and said mean 130 for manipulating said source 120. Said target 110 further includes the target substance 111, said first container 112 holding said substance 111 and said internal probe 113 inserted into said container 112. Said source further including said originating substance 121 and said second container 122 holding said substance 121.

[Para 48] In one particular embodiment, the target substance 111 and originating substance 121 are quantum-entangled water prepared according to one of the said quantum entanglement process, the internal probe is a traceable-calibration digital thermometer with a resolution of 0.001 °C and repeatability of 0.002°C in liquid near 25°C, container 112 is a small flat glassware

of the dimensions about l "x4"x6" (thickness, width, height) with a useful internal volume of about 250ml, container 122 is a round plastic ware of the dimensions 2 "x7" (diameter, height) with a useful internal volume of about 350ml, and the manipulation mean 130 is a particular embodiment of mean 131 shown in FIG. 2 which includes a 25-liter Dewar and 10-25 liters of liquid nitrogen filling said Dewar. The container 112 has a removable cap so that it can be filled, emptied, closed and fitted with the said probe 113. The container 122 also has a removable cap so that container 122 can be filled, emptied and closed. It will be understood, however, that the invention is not limited only to quantum-entangled water but also applies to other quantum-entangled media. It will be further understood that the internal probe is not limited only to the said digital thermometer but also applies to other internal probes such as pH meter and conductivity meter depending on a particular purpose.

[Para 49] To use the apparatus having this particular embodiment for a desired purpose such as non-local signaling, control of a device or manipulation of the physical and or chemical properties of the target substance, one disposes the said target 110 to a desired location A with well-controlled environment and the said source 120 to another desired location B, operates the manipulation mean 131 by submerging the container 122 containing substance 121 into the 25-litre

> Dewar filled with 10-25 liters of liquid nitrogen for a desired length of time whereby the target substance 111 are remotely influenced by the operation of the said manipulation mean through non-local process 190 mediated by quantum entanglement between the target substance 111 and originating substance 121, and records readings of said probe 113 both before and during the operation of the said mean 131 for a desired period of time depending on a desired purpose.

We have no doubt that if Appellant's invention is able to use quantum entanglement to alter the weight, temperature and/or pH value of a *first* substance by modifying only some other *second* substance that had previously been exposed to "magnetic pulses, laser light, or microwave," with the first substance it would be both groundbreaking and revolutionary. *See* Reply Br. 6. However, due to the absence of any known scientific principles explaining how Appellant's invention could possibly operate in this manner, the absence of any cogent explanation in Appellant's Specification regarding the general principals or mechanisms causing this to occur,[2] and

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[2] That is not to say that Appellant must, in all cases, explain the scientific principles governing how a device operates if they are not known. See In re Anjhauser, 399 F.2d 275,283 (CCPA 1968) (explaining an applicant "is not legally required to comprehend the scientific principles on which the practical effectiveness of his invention rests"). However, Appellant makes no assertion here that the governing principles are unknown. Rather Appellant repeatedly asserts, citing various sources of extrinsic evidence, that the principles would be readily understood by those skilled in the art (App. Br. 43, 47, 50, and 53-57) even if they are misunderstood by the Examiner (App.

the absence of any verifiable test data reasonably attributable to the purported result, the Examiner reasonably characterized Appellant's invention as being of an incredible nature. *See, e.g.,* MPEP § 2107.01 (II). Despite providing eighty-six pages of arguments and voluminous amounts of papers and articles on the subject, we are not apprised of any error in the Examiner's determinations. We find no explanation as to why ordinary and conventional magnetic pulse, laser light, or microwave produces any meaningful quantum entanglements and, even if it did, why it would have any meaningful long-lasting effects on a substance so as to cause a substance to exhibit changes in weight, temperature, and/or pH due to alterations made to a separate and discrete portion of that substance. There is no explanation offered as to why spin or any other quantum property of entangled particles would bring about these types of changes in a remote, "non-local" portion of a sample or substance. We are also not apprised of any data logically evincing such an interaction has actually occurred. We agree with the Examiner that Appellant's pH data, as amended or as originally filed, is not readily decipherable

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Br. 15, 16, 43, 57, 60, 66, 89, 91, and 93). If the principles governing the operation of Appellant's method were so readily amenable to understanding we see no reason to omit an explanation of them from Appellant's Specification and Appellant's extensive briefing. The cited articles do not fill in these gaps with specific relevance to the subject matter in question presently before us. Furthermore, the fundamental issue is not whether Appellant has explained how the claimed invention works. Rather, the requirements of utility and enablement consider whether Appellant's invention works as claimed.

and is of questionable validity. Ans. 38-39. The various articles cited by Appellant are either generic in nature and discuss only the possibility of quantum entanglements occurring without explaining any reason they would cause the interactions alleged in the present application, from sources regarded as having no scientific value,[3] or both.

In 1931, the predecessor to our reviewing court considered a case involving a "Method and Apparatus for Accumulating and Transforming Ether Electric Energy." The court's reasoning there is equally applicable here:

> It is fundamental in patent law that an alleged invention, to be patentable, must be not only new but useful, and that it must appear capable of doing the things claimed in order to be a device of practical utility.
>
> The rule of doubt may only be applied in favor of an applicant where the doubt is a reasonable one, that is, one founded in reason and engendered by testing the alleged invention by known scientific laws and principles.

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[3] See, e.g., IN THE NORWEGIAN REGISTER FOR SCIENTIFIC JOURNALS, SERIES AND PUBLISHERS: JOURNAL OF BIOPHYSICAL CHEMISTRY, available at https://dbh.nsd. uib .no/publiseringskanaler/KanalTidsskriftlnfo .action?id=4 7 8691; NEUROQUANTOLOGY, available at https://dbh.nsd. uib .no/publiseringskanaler/KanalTidsskriftlnfo .action?id=4 7 3508; PROGRESS IN PHYSICS, available at https://dbh.nsd. uib .no/publiseringskanaler/KanalTidsskriftlnfo .action?id=4 7 3750.

Neither the Patent Office tribunals nor the courts may properly grant patents upon a mere possibility that a device might do the things claimed for it, and be useful. There must be definiteness. Neither the Constitution nor the statutes contemplate the granting of patents upon theories, nor giving a monopoly upon intellectual speculations embodied in devices incapable of scientific analysis.

The question of patentable invention ordinarily must be determined by applied science, as understood by those skilled in the art to which the invention relates, and, if one presents a device which cannot be tested by any known scientific principles, he must, at least, demonstrate its workability and utility and make clear the principles upon which it operates.

No such demonstration here appears from appellant's application, or otherwise. Three affidavits are presented of parties who claim to have seen appellant's device in operation and who vouch for its working. These affidavits, however, are brief, general in character, and give no description of the device which affiants saw. Nor do they give any explanation which contains anything tending to clarify the terminology of the specification, or to render the device measurable by engineering principles or known natural laws.

In re Perrigo, 48 F.2d 965, 966 (CCPA 1931) (citations omitted); *accord In re Ferens,* 417 F.2d 1072, 1074 (CCPA 1969) ("[W]here an applicant predicates utility for the claimed invention on allegations of the sort here which are or border on the incredible in light of contemporary knowledge of the particular art, those allegations must be substantiated by acceptable evidence."); *In re Eltgroth,* 419 F.2d 918,922 (CCPA 1970) ("The invention relates to the control of growth, aging and degeneration in living organisms, particularly to appellant's alleged discovery of what appears to be a key for the solution of the problems associated with these life processes .... Undoubtedly, the alleged utility of control of the aging process in living organisms and the significant beneficial results flowing therefrom is adequate. Yet, there is a conspicuous absence of proof thereof.").

For the foregoing reasons and those stated by the Examiner (Final Act. 3-37; Ans. 11-39), after consideration of the evidence and arguments of record, we are not apprised of error in the Examiner's position concerning a lack of utility under§ 101 and a lack of enablement under§ 112, first paragraph.

DECISION

The Examiner's rejections are affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § l .136(a). *See* 37 C.F.R. § l.136(a)(l)(iv).

AFFIRMED

APPENDIX C

(C.A.J.A. 27-13)

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HUPING HU

Appeal 2018-003398
Application 13/449,739
Technology Center 3700

Before: CHARLES N. GREENHUT, JEFFREY A. STEPHENS, and ALYSSA A. FINAMORE, *Administrative Patent Judges.*

GREENHUT, *Administrative Patent Judge.*

DECISION ON APPEAL[1]

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[1] Related appeals are: 2018-003120 in application 11/670,996; 2018-003401 in application 13/492,830; and 2018-007211 in application 11/944,631.

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from a rejection of claims 1-3, 6-8, 12, and 13. We have jurisdiction under 35 U.S.C. § 6(b). Appellant criticizes the Examiner for not proposing amendments to the claims or new claims because Appellant is *pro se*. See App. Br. 24; Reply Br. 9. Because it is a matter of examination practice that does not sufficiently relate to a specific rejection of the claims before us, we lack jurisdiction over the issues of *pro se* treatment. *In re Hengehold,* 440 F.2d 1395 (CCPA 1971); 37 C.F.R. § 1.181; *see* App. Br. 24; Reply. Br 9.

We affirm.

CLAIMED SUBJECT MATTER

The claims are directed to an apparatus for producing quantum entanglement and non-local effects of substances. Spec. para. 2. Claim 1, reproduced below, is illustrative of the claimed subject matter:

> Claim 1: An apparatus for producing a plurality of quantum entanglements between a first plurality of quantum entities in a chemical substance and a second plurality of quantum entities in a human or animal, a non-local chemical effect of said human or animal on said chemical substance through said plurality of quantum entanglements and/or a non-local biological effect of said chemical substance on said human or animal through said plurality of quantum entanglements which comprises:

a quantum-entanglement generating source which emits a plurality of quantum-entangling photons or magnetic pulses when said source operates;

a first container for holding said chemical substance disposed next to said source; and

said chemical substance in said container;

such that when said first container is filled with said chemical substance is disposed next to said human or animal, and said source operates, said photons or magnetic pulses interact with said first plurality of quantum entities in said chemical substance and said second plurality of quantum entities in said human or animal generating said plurality of quantum entanglements, said non-local chemical effect through said plurality of quantum entanglements which comprises an effect of said human or animal on a chemical property or process of said chemical substance and/or said biological non-local effect through said plurality of quantum entanglements which comprises an effect of said chemical substance on a biological property or process of said human or animal.

REJECTIONS

Claims 1-3, 6-8, 12, and 13 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Claims 1-3, 6-8, 12, and 13 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

Claims 1-3, 6-8, 12, and 13 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 1-3, 6-8, 12, and 13 are rejected because the claimed invention is directed to a judicial exception to 35 U.S.C. § 101.

Claims 1, 6, and 12 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kiontke (US 6,425,851 B1 iss. July 30, 2002).

OPINION

At issue in this case are the apparatus claims associated with the method discussed in appeal number 2018-003120 (application 11/670,996).

Enablement under § 112, first paragraph

The issues now before us regarding the enablement rejection under 35 U.S.C. § 112, first paragraph, are substantially the same as in 2018-003120. The claims subject to the enablement rejection are argued as a group (App. Br. 11-22), with claim 1 being representative under 37 C.F.R. § 41.37(l)(iv).[2] Paragraphs 9 and 11 of Appellant's Specification summarize the invention as follows:

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[2] Claims 2 and 3 are cited by Appellant to contest the Examiner's determination regarding the breadth of claim 1 under In re Wands, 858 F.2d 731 (Fed. Cir. 1988). Claims 2 and 3 are not considered separately argued.

> [Para 9] For example, using the apparatus and method developed in this invention I have discovered that applying magnetic pulses to a biological system such as the human brain when a substance such as a general anesthetic was placed in between caused the brain to feel the effect of said anesthetic for several hours after the treatment as if the test subject had actually inhaled the same.
>
> ....
>
> [Para 11] Further, I have verified as detailed below that said biological effect was the consequence of quantum entanglement between quantum entities inside the biological system such as the human brain and those of the substance under study induced by the photons of the magnetic pulses, laser light, microwave or flashlight.

The Examiner provided a detailed analysis, citing various evidentiary sources, including, but not limited to, those submitted by Appellant, in considering the *Wands* factors *(see In re Wands,* 858 F.2d 731; MPEP § 2164.01) as they relate to enablement. *See* Final Act. 2-6. We agree with the Examiner's analysis, which raised reasonable doubts as to the Specification's compliance with the enablement requirement. Appellant's arguments (App. Br. 11-21) merely make allegations contrary to those made by the Examiner without any meaningful analysis citing specific examples apprising us as to precisely how the Specification is enabling for the subject matter claimed. Appellant cites, *inter alia,* paragraphs 43 and 45 of the Specification (App. Br. 18), which, along with Figure 1A, are reproduced

below to summarize an embodiment of Appellant's invention:

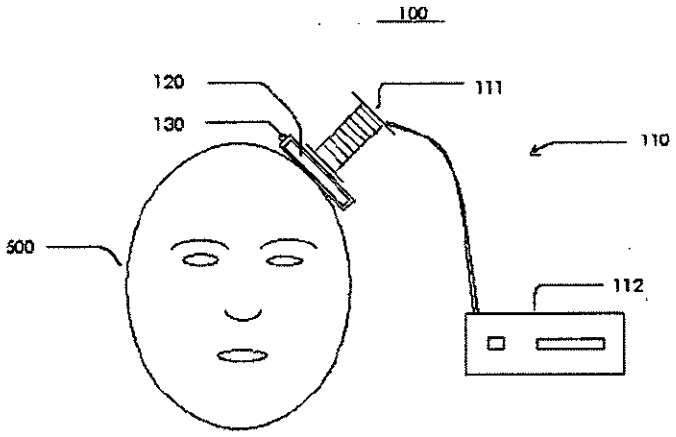

FIG. 1A

[Para 43] In one particular embodiment, the containerl30 is a small glassware of the dimensions about I"x3"x4" with a useful internal volume of about 20ml, and the source 110 is made up of a magnetic coil 111 and an audio system 112 connected to the said magnetic coil. The said small glassware has a cap which is removable so that the container can be filled or emptied. The said magnetic coil is made up of a 75-feet and 26-gauge magnetic wire coated with enamel for insulation and wound on an open-ended plastic tube of the dimensions 3" in length and 1.5" in diameter. The said audio system is a typical consumer electronic product or a

> combination of several consumer electronic products readily available from a consumer electronics store.
>
> ....
>
> [Para 45] To use the apparatus having this particular embodiment, one disposes the said apparatus 100 adjacent to a responsive target 500 such as a person's brain, and plays music on the audio system 112 with a desired output power and for a desired length of time whereby the photons generated by the magnetic coil 111 first quantum-entangle with quantum entities inside the substance 120, then travel to the biological system 500 and subsequently entangle with the quantum entities inside the biological system 500 producing non-local effect of the substance 120 on the biological system 500 through quantum entanglement.

We have no doubt that if Appellant's invention is able to use quantum entanglement to administer a general anesthetic to the human brain by directing music toward that brain through a container of that anesthetic it would be groundbreaking and revolutionary. *See* App. Br. 24. However, due to the absence of any known scientific principles explaining how Appellant's invention could possibly operate in this manner, the absence of any cogent explanation in Appellant's Specification regarding the general principals or mechanisms causing this to occur,[3] and

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[3] That is not to say that Appellant *must,* in all cases, explain the scientific principles governing how a device operates if they are not known. *See In re Anfhauser,* 399 F.2d 275, 283 (CCPA 1968) (explaining an applicant "is not legally required to comprehend the scientific principles on which the practical

the absence of any verifiable test data reasonably attributable to the purported result, the Examiner reasonably characterized Appellant's Specification as failing to satisfy the enablement requirement. Despite extensive arguments and voluminous submissions of articles on the subject, we are not apprised of any error in the Examiner's determinations. We find no explanation as to why ordinary and conventional audio produces any meaningful quantum entanglements and, even if it did, why they would have any meaningful effects on the pharmacological interaction between an anesthetic agent and the brain. There is no explanation offered as to why spin or any other quantum property of entangled particles would bring about a pharmacological effect in a subject, particularly one mimicking the known and expected effects a substance causes via its known and typical biochemical pathways. We are also not apprised of any data logically evincing such a pharmacological interaction has actually occurred. We agree with the

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effectiveness of his invention rests"). However, Appellant makes no assertion *here* that the governing principles are unknown. Rather Appellant repeatedly asserts, citing various sources of extrinsic evidence, that the principles would be readily understood by those skilled in the art (App. Br. 18-19, 21) even if they are misunderstood by the Examiner (App. Br. 24; Reply. Br. 11, 14). If the principles governing the operation of Appellant's method were so readily amenable to understanding we see no reason to omit an explanation of them from Appellant's Specification and Appellant's extensive briefing. The cited articles do not fill in these gaps with specific relevance to the subject matter in question presently before us. Furthermore, the fundamental issue is not whether Appellant has explained how the claimed invention works. Rather, the requirements of utility and enablement consider whether Appellant's invention works as claimed.

Examiner that heart rate changes (App. Br. 28-29), even if present, do not amount to such evidence because heart rate changes do not necessarily demonstrate a specific pharmacological interaction. Ans. 4. The various articles cited by Appellant are either generic in nature and discuss only the possibility of quantum entanglements occurring without explaining any reason they would cause the interactions alleged in the present application, from sources regarded as having no scientific value,[4] or both. In light of all this uncertainty, we agree with the Examiner that undue experimentation would be required to practice the invention as claimed. Accordingly, we sustain the Examiner's enablement rejection.

Written Description under § 112, first paragraph

The claims subject to the written-description rejection are argued as a group (App. Br. 6-11) for which claim 1 is representative under 37 C.F.R. § 41.37(c)(1)(iv).

> The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant must also convey with reasonable clarity to

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[4] *See, e.g.*, IN THE NORWEGIAN REGISTER FOR SCIENTIFIC JOURNALS, SERIES AND PUBLISHERS: JOURNAL OF BIOPHYSICAL CHEMISTRY, available at https://dbh.nsd.uib.no/publiseringskanaler/KanalTidsskriftInfo.action?id=478691; NEUROQUANTOLOGY, available at https://dbh.nsd.uib.no/publiseringskanaler/KanalTidsskriftInfo.action?id=47 3508; PROGRESS IN PHYSICS, available at https://dbh.nsd.uib.no/publiseringskanaler/KanalTidsskriftInfo.action?id=47 3750.

> those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the "written description" inquiry, whatever is now claimed.

Vas-Cath Inc. v. *Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991) (emphasis omitted).

Some of the Examiner's discussion (Final Act. 3; Ans. 3-5) regarding the written description requirement arguably relates to the operability of the device and may be more suited to the enablement/utility analysis discussed above and in the related appeals. Nevertheless, the Examiner raises a valid point with regard to the written description requirement:

> Furthermore, Applicant discloses the source can be anything and states one of ordinary skill will be able to readily determine the appropriate source and operating specifications (see specification paragraph 39). Although some examples are listed, the examples are widely disparate and unrelated and don't provide guidance or limits as to what could or could not be a source. Similarly, Applicant discloses that any substance and container can be used (see specification paragraphs 40-41).

Final Act. 3.

The issue raised by the Examiner concerns the breadth of the recitations related to the source and

substance aspects of the claim. Regarding the source, Appellant's Specification provides:

> [Para 51] The said source will be, depending on a particular use, any source, such as a magnetic coil connected to a driving device, laser, microwave oven, flashlight or even a biological system, which is capable of generating quantum-entangling members such as photons, electrons, atoms or molecules when said source operates. The selection and operating specifications of the source will vary according to the use. The person skilled in the art will be able readily to determine the appropriate source and operating specifications of said source, with only routine experimentation, for optimum performance of the specific use intended.

Regarding the substance, Appellant's Specification provides:

> [Para 40] The said substance will be, depending on the use, a single substance or a mixture of several substances and has the physical forms of a liquid, gel, powder, solid or gas, or a mixture of these said forms. Again, the selection of the substance or specific mixture of substances and their precise concentrations will vary according to the use. It will, however, from the information herein, be well within the ability of a person of ordinary skill in the art to select the appropriate mixture of substances for the particular use intended by such

> person, with no more than routine experimentation.

The Specification provides a few examples of suitable sources and substances. However, claim 1 encompasses subject matter wherein anything capable of generating photons or magnetic pulses for causing quantum entanglements, whether known or unknown, described in Appellant's Specification or not, can be the source. Similarly, claim 1 encompasses subject matter wherein any substance, whether known or unknown, described in Appellant's Specification or not, that can have its therapeutic properties administered to a patient via quantum entanglements. In this emerging field of technology, it is relatively clear that Appellant has not demonstrated possession of a sufficient number of sources and substances to broadly claim subject matter that covers all possible photon and magnetic sources that may generate quantum entanglements and all possible substances that may have properties conveyed by them. Even if we were to set aside the question of enablement and assume that Appellant has demonstrated possession of a limited number of sources and substances, the scope of the right to exclude that would be granted by claim 1 would far exceed Appellant's contribution to the art—preempting the future before it has arrived:

> Patents are not awarded for academic theories, no matter how groundbreaking or necessary to the later patentable inventions of others. "[A] patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion." Requiring a written description of the

> invention limits patent protection to those who actually perform the difficult work of "invention"—that is, conceive of the complete and final invention with all its claimed limitations—and disclose the fruits of that effort to the public.
>
> That research hypotheses do not qualify for patent protection possibly results in some loss of incentive .... But claims to research plans also impose costs on downstream research, discouraging later invention. The goal is to get the right balance, and the written description doctrine does so by giving the incentive to actual invention and not attempt[s] to preempt the future before it has arrived. As this court has repeatedly stated, the purpose of the written description requirement is to ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification. It is part of the *quid pro quo* of the patent grant and ensures that the public receives a meaningful disclosure in exchange for being excluded from practicing an invention for a period of time.

AriadPharms., Inc. v. *EliLilly & Co.,* 598 F. 3d 1336, 1353-54 (Fed. Cir. 2010) (en banc) (citations and internal quotations omitted).

Accordingly, we sustain the Examiner's written-description rejection.

Indefiniteness under 35 U.S.C. § 112, second paragraph

The Examiner included two grounds for rejecting the claims under 35 U.S.C. § 112, second paragraph. The first is:

> claims 1 and 12 do not specify how the source operates and no specific structure for the apparatus is recited. Since it is unclear what interaction and effect applicant is claiming, what structure defines the apparatus, how the apparatus operates, and how the effect is generated, the metes and bounds of the claim[s] are not clear.

Final Act. 6-7. Appellant correctly argues (App. Br. 23-24) this issue relates to breadth and, without more, not indefiniteness. Accordingly, we do not sustain the § 112-second-paragraph rejection on this particular basis.

The next basis for the Examiner's rejection under § 112, second paragraph is:

> Claim 1 recites "and said chemical substance in said container" in lines 9-10. This language is indefinite because it is unclear whether this is meant to specify the chemical substance in said container as an additional element of the claim or whether this is specifying the container holds the chemical substance in the previous clause.

Final Act. 7. We agree that the phrase in question is ambiguous for the reasons stated by the Examiner.

Appellant did not elect to adopt the Examiner's proposed change (Final Act. 7) to reduce the issues presented for appeal or to contest this particular grounds for rejection under § 112, second paragraph. As this ground for rejection stands uncontroverted, we sustain the Examiner's rejection of claims 1-3 and 6-8 on this basis. *See In re Berger,* 279 F.3d 975 (Fed. Cir. 2002) (affirming the Board's affirmance of an uncontested rejection, holding that the appellant had waived the right to contest the rejection by not presenting arguments on appeal to the Board); *Hyatt* v. *Dudas,* 551 F.3d 1307, 1314 (Fed. Cir. 2008) ("[T]he applicant can waive appeal of a ground of rejection."). The Examiner does not reject independent claim 12 on this basis, so this ground is not applicable to claims 12 and 13.

Anticipation under § 102(b)

The claims subject to the anticipation rejection are argued as a group (App. Br. 43) for which claim 1 is representative. It is undisputed that the Examiner found each and every structural element of claim 1 in Kiontke. Final Act. 8-9. To summarize Appellant's argument:

> Kiontke neither teaches/mentions quantum entanglement set forth in the instant Application nor teaches/mentions how to produce quantum entanglement. Further, Kiontke neither teaches/mentions non-local effect nor teaches/mentions or how to produce non-local effect.... The entire Kiontke text makes no mention of quantum entanglement, production of quantum

> entanglement, non-local effect and production of non-local effect.

App. Br. 43.

Appellant's argument misses the point. Where, as here, the Examiner has shown, citing Appellant's own Specification as supporting evidence,[5] that the prior art contains the same structure, it is reasonable for the Examiner to conclude that the prior art structure will exhibit the same latent properties, which include generating "quantum entanglements" and "non- local [ ] effects." *See In re Spada,* 911 F.2d 705, 708 (Fed. Cir. 1990). Appellant has not provided any cogent scientific reasoning or evidence to apprise us of error in the Examiner's determination in this regard. Claims differing from a prior-art process by no more than the recitation of a result do not distinguish those claims over the prior art. *Bristol-Myers Squibb Co.* v. *Ben Venue Labs., Inc.,* 246 F.3d 1368, 1376-77 (Fed. Cir. 2001). Even assuming Appellant did discover that non-local effects of a substance could be created in a subject by placing the substance between the subject and a magnetic coil due to quantum entanglements, this discovery, however profound, does not, without more, distinguish over the Kiontke apparatus. Something old does not become patentable by the discovery of a new property or previously unknown principle of operation. *See* MPEP § 2112. Accordingly, we sustain the Examiner's anticipation rejection.

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[5] See, e.g., Elan Pharms., Inc. v. Mayo Found., 304 F.3d 1221 (Fed. Cir.), Dyk, J., dissenting (distinguishing inherency from hindsight), vacated at 314 F.3d 1299 (Fed. Cir. 2002) (en banc).

Subject matter eligibility under §101

The claims subject to this ground of rejection are argued as a group (App. Br. 25—42) with claim 1 being representative.

The structural elements of claim 1 are "a quantum-entanglement generating source," "a first container," and, arguably (*see* § 112, second paragraph discussion above), "a chemical substance." The remainder of the claim describes the purported natural effects flowing from operating the source next to the container which is, in turn, next to a subject.[6] The Examiner concludes claim 1 is directed to a natural phenomenon of generating quantum entanglements which, along with their interactions with a subject, are natural results of magnetic pulses or photons, and therefore falls within a judicial exception to subject matter eligible for patenting. Final Act. 7-8; *see, e.g., Alice Corp. v. CLSBankInt'l*, 573 U.S. 208, 216 (2014) ("Laws of nature, natural phenomena, and abstract ideas" are not patentable.);

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[6] *See* claim 1 ("such that when said first container is filled with said chemical substance is disposed next to said human or animal, and said source operates, said photons or magnetic pulses interact with said first plurality of quantum entities in said chemical substance and said second plurality of quantum entities in said human or animal generating said plurality of quantum entanglements, said non-local chemical effect through said plurality of quantum entanglements which comprises an effect of said human or animal on a chemical property or process of said chemical substance and/or said biological non-local effect through said plurality of quantum entanglements which comprises an effect of said chemical substance on a biological property or process of said human or animal").

see also MPEP § 2106.04(b). The Examiner considers the source and container limitations and determines they lack the particularity necessary for a machine, transformation, or useful application to bring the claim within the ambit of subject matter that is a patent-eligible practical application. Final Act. 8; see MPEP §§ 2106.05(a)-(c). It is undisputed and consistent with Appellant's own Specification that the componentry relied upon to bring about the purported effects is well-understood, routine, and conventional. See Spec, paras. 40, 51, reproduced above, and para. 41;[7] *see also* MPEP § 2106.05(d).

Appellant first argues the Examiner took an alternate position previously in prosecution. App. Br. 26. This has no bearing on the rejection presently before us. *In re Ruschig,* 379 F. 2d 990, 993 (CCPA 1967) ("There is nothing unusual, certainly, about an examiner changing his viewpoint as to the patentability of claims as the prosecution of a case progresses, and, so long as the rules of Patent Office practice are duly complied with, an applicant has no legal ground for complaint because of such change in view." (quoting *In re Ellis,* 86 F.2d 412, 414 (CCPA 1936))). Appellant also argues, "the pending claims do include additional elements that are sufficient to amount to significantly more than the judicial exception - One only needs to read the pending claims in the context of the Specification to reach this conclusion." App. Br. 26. Without any analysis of

[7] [Para 41] The container will be any material and form capable of supportive functions such as a simple plastic frame, a glass or plastic bottle, or polymer matrix. The container will be optional if the substance or the mixture of substances will be made into an appropriate solid. Further, the container will be at least partially transparent to quantum-entangling members such as photons generated by the source.

the specific claim language in question, this argument is of little persuasive value. Arguments must address the Examiner's action. 37 C.F.R. § 41.37(c)(l)(iv) ("The arguments shall explain why the examiner erred as to each ground of rejection contested by appellant."). "Filing a Board appeal does not, unto itself, entitle an appellant to *de novo* review of all aspects of a rejection." *See Ex Parte Frye,* 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) (citations omitted). "[T]he Board will not, as a general matter, unilaterally review those uncontested aspects of the rejection." *Id.* at 1075-76 (citations omitted). Appellant also contends the Examiner's issue relates to breadth. App. Br. 26. Issues of breadth are discussed above with regard to the rejections under the first paragraph of § 112. However, that does not make issues of breadth irrelevant to the eligibility inquiry under § 101 where one must frequently determine whether a limitation is "particular" or "generic." *See, e.g.,* MPEP § 2106.05.

The PTO recently published revised guidance on the application of §101. *2019 Revised Patent Subject Matter Eligibility Guidance,* 84 Fed. Reg. 50 (Jan. 7, 2019) ("Guidance"). Under that guidance, one should consider whether a claim recites a judicial exception and if so, whether the claim recites additional elements that integrate the judicial exception into a practical application *(see* MPEP § 2106.05(a)-(c), (e)-(h)) and whether the claim includes a specific limitation beyond the judicial exception that is not "well-understood, routine, conventional" in the field *(see* MPEP § 2106.05(d)).

The remainder of Appellant's arguments do not appear to have any relevance whatsoever to the various factors that should be considered in a §101 analysis. App. Br. 27-12; Ans. 9. The Examiner's analysis, summarized above, is consistent with PTO guidance and stands essentially uncontroverted. Accordingly, we adopt the Examiner's position[8] and sustain the § 101 rejection on the basis set forth by the Examiner.

DECISION

The rejection of claims 1-3, 6-8, 12, and 13 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement is affirmed.

The rejection of claims 1-3, 6-8, 12, and 13 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement is affirmed.

The rejection of claims 1-3 and 6-8 under 35 U.S.C. § 112, second paragraph, as being indefinite is affirmed.

The rejection of claims 12, and 13 under 35 U.S.C. § 112, second paragraph, as being indefinite is reversed.

The rejection of claims 1-3, 6-8, 12, and 13 because the claimed invention is directed to a judicial exception to 35 U.S.C. § 101 is affirmed.

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[8] See, e.g., In re Paulsen, 30 F. 3d 1475, 1478 n. 6 (Fed. Cir. 1994); accord In re Cree, 818 F.3d 694, 698 n.2 (Fed. Cir. 2016).

The rejection of claims 1, 6, and 12 under 35 U.S.C. § 102(b) as being anticipated by Kiontke is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(l)(iv).

AFFIRMED[9]

[9] "The affirmance of the rejection of a claim on any of the grounds specified constitutes a general affirmance of the decision of the examiner on that claim, except as to any ground specifically reversed." 37 C.F.R. § 41.50(a).

APPENDIX D

(C.A.J.A. 45-62)

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HUPING HU and MAOXIN WU

Appeal 2018-003401
Application 13/492,830
Technology Center 3700

Before: CHARLES N. GREENHUT, JEFFREY A. STEPHENS, and ALYSSA A. FINAMORE, *Administrative Patent Judges.*

GREENHUT, *Administrative Patent Judge.*

DECISION ON APPEAL[1]

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[1] Related appeals are: 2018-003398 in application 13/449,739; 2018-003120 in application 11/670,996; and 2018-007211 in application 11/944,631.

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from a rejection of claims 5, 7-9, 11 and 12.[2] We have jurisdiction under 35 U.S.C. § 6(b). Because it concerns a matter of examination practice that does not sufficiently relate to a specific rejection of the claims before us, we lack jurisdiction over the issues of pro se treatment. In re Hengehold, 440 F.2d 1395 (CCPA 1971); 37 C.F.R. § 1.181; see App. Br. 28; Reply. Br 10.

We affirm.

CLAIMED SUBJECT MATTER

The claims are directed to a method and apparatus for producing and detecting non-local effects of substances. Claim 5, reproduced below, is illustrative of the claimed subject matter:

> Claim 5: A method of producing and detecting a second plurality of quantum entanglements between a third plurality of quantum entities in a first target and a fourth plurality of quantum entities in a second target, a first non-local effect of said second target on said first target through said second plurality of quantum entanglements and/or a second non-local effect of said first target on said second target through said second plurality of quantum entanglements which comprises the steps of:

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[2] The copy of the claims in the Claims Appendix attached to the Appeal Brief is incorrect. We refer herein to the finally rejected claims as presented in an amendment filed September 4, 2016.

selecting said first target which comprises a first chemical substance, human or animal at a first location;

selecting said second target which comprises a second chemical substance, human or animal at a second location;

providing a first water-based medium at said first location and a second water-based medium at said second location, a first plurality of quantum entities in said first medium being in a first plurality of quantum entanglements with a second plurality of quantum entities in said second medium;

providing a detecting means for detecting said second plurality of quantum entanglements, said first non-local effect and/or said second non-local effect when said detecting means operates;

causing said first target to interact with said first water-based medium through a first contact or radiation from a first photon or magnetic pulse generating source;

causing said second target to interact with said second water-based medium through a second contact or radiation from a second photon or magnetic pulse generating source; and

detecting said second plurality of quantum entanglements, said first non-local effect and/or said second non-local effect;

whereby said second plurality of quantum entanglements between said third plurality of quantum entities in said first target and said fourth plurality of quantum entities in said second target is generated through said interaction between said third

plurality of quantum entities in said first target and said first plurality of quantum entities in said first water-based medium and said interaction between said fourth plurality of quantum entities in said second target and said second plurality of quantum entities in said second water-based medium, and detected through said detecting means; and said first non-local effect of said second target on said first target, comprising a first effect of said second target on a first physical, chemical or biological property or process of said first target, and/or said second non-local effect of said first target on said second target, comprising a second effect of said first target on a second physical, chemical or biological property or process of said second target, are generated through said second plurality of quantum entanglements between said third plurality of quantum entities in said first target and said fourth plurality of quantum entities in said second target and detected through said detecting means.

REJECTIONS[3]

Claims 5, 7-9, 11, and 12 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Claims 5, 7-9, 11, and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

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[3] The Examiner withdrew the anticipation rejection. Ans. 2.

Claims 5, 7-9, 11, and 12 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 5, 7-9, 11, and 12 are rejected under 35 U.S.C. § 101 because the claimed invention lacks patentable utility.

Claims 5, 7-9, 11, and 12 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 14, 18, 19, 23, and 24 of copending Application No. 11/670,996.[4]

OPINION

Enablement under § 112, first paragraph and utility under §101

For each of these rejections, Appellants argue the claims as a group (App. Br. 12-23; 29-64), for which claim 5 is representative under 37 C.F.R. § 41.37(c)(l)(iv).[5] With regard to the questions of enablement and utility, our reviewing court has summarized:

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[4] The double-patenting rejection is not contested and therefore not further addressed herein. "Once the provisional rejection has been made, there is nothing the examiner and the applicant must do until the other application issues." In re Mott, 539 F. 2d 1291, 1295-96 (CCPA 1976); see also MPEP § 804(1).

[5] Claims 7, 8, 11, and 12 are cited by Appellant to contest the Examiner's determination regarding the breadth of claim 5 under In re Wands, 858 F.2d 731 (Fed. Cir. 1988). App. Br. 12-13. Claims 7, 8, 11, and 12 are not considered separately argued.

> The questions of whether a specification provides an enabling disclosure under § 112, ¶ 1, and whether an application satisfies the utility requirement of § 101 are closely related. To satisfy the enablement requirement of § 112, ¶ 1, a patent application must adequately disclose the claimed invention so as to enable a person skilled in the art to practice the invention at the time the application was filed without undue experimentation. The utility requirement of § 101 mandates that the invention be operable to achieve useful results. Thus, if the claims in an application fail to meet the utility requirement because the invention is inoperative, they also fail to meet the enablement requirement because a person skilled in the art cannot practice the invention. The how to use prong of section incorporates as a matter of law the requirement of 35 U.S.C. § 101 that the specification disclose as a matter of fact a practical utility for the invention. Lack of utility is a question of fact, and the absence of enablement is a legal conclusion based on underlying factual inquiries.

In re Swartz, 232 F. 3d 862, 863 (Fed. Cir. 2000) (quotations and internal citations omitted); *see also* MPEP § 2164.07.

The paragraphs of Appellants' Specification reproduced below summarize the invention as follows:

[Para 6] My invention and discovery were made against such background. No process has previously been known which can produce non-local effects of substances through quantum entanglement on responsive targets such as biological or chemical systems, so that beneficial effects of the said substances can be delivered through quantum-entangling media such as photons of various sources.

....

[Para 10] The subject invention is therefore based on my realizations that (1) quantum entanglement means genuine interconnectedness and inseparableness of once interacting quantum entities and can be directly sensed and utilized by the entangled quantum entities; (2) it can persist in biological, chemical and other systems at room and higher temperatures despite of quantum decoherence; and (3) it can influence chemical and biochemical reactions, other physical processes and micro- and macroscopic properties of all forms of matters. Therefore, it can be harnessed and developed into useful technologies to serve the mankind in many areas such as health, medicine and even recreation besides the already emerging fields of quantum computation.

....

[Para 11] For example, using the apparatus and method developed in this invention I have discovered that applying magnetic pulses to a biological system such as the human brain when a substance such as a

general anesthetic was placed in between caused the brain to feel the effect of said anesthetic for several hours after the treatment as if the test subject had actually inhaled the same.

....

[Para 12] For another example, using the apparatus and method developed in this invention I have further discovered that drinking water exposed to magnetic pulses, laser light, microwave or even flashlight when a substance such as a general anesthetic was placed in between also caused the brain to feel the effect of said anesthetic in various degrees as if the test subject had actually inhaled the same.

....

[Paral3] Further, I have verified as detailed below that said biological effect was the consequence of quantum entanglement between quantum entities inside the biological system such as the human brain and those of the substance under study induced by the photons of the magnetic pulses, laser light, microwave or flashlight.

....

[Para 14] For yet another example, using the objective and quantitative detecting and measuring apparatus and method developed in this invention, we have further discovered that after consumption by a voluntary human subject of one part of water quantum entangled with a second part of water as disclosed in this invention, the subject's heart rate was increased by adding a heart stimulant to the second part of water.

....

[Para 16] Key to the objective and quantitative detection and measurement in biological systems in the present invention is a high-sensitivity and/or high-precision apparatus for detecting and measuring a physiological and/or biological parameter.

The Examiner provided a detailed analysis, citing various evidentiary sources, including, but not limited to, those submitted by Appellants, in considering the Wands factors as they relate to enablement, and the question of whether the claimed invention contravenes established scientific principles, as that question relates to the utility requirement. See Final Act. 4-6, 8-11. We agree with the Examiner's analysis, which raised reasonable doubts as to operability of Appellants' invention and the Specification's compliance with the enablement requirement. Appellants' arguments rely mainly on extrinsic sources that seem to bear little relevance to the particular subject matter in question here and patentability determinations made in other jurisdictions. The focus of this inquiry is on Appellants' Specification. In that regard, Appellants cite, *inter alia,* paragraphs 78, 79, 84 of the Specification (App. Br. 15) which, along with Figure 7, are reproduced below to summarize an embodiment of Appellants' invention:

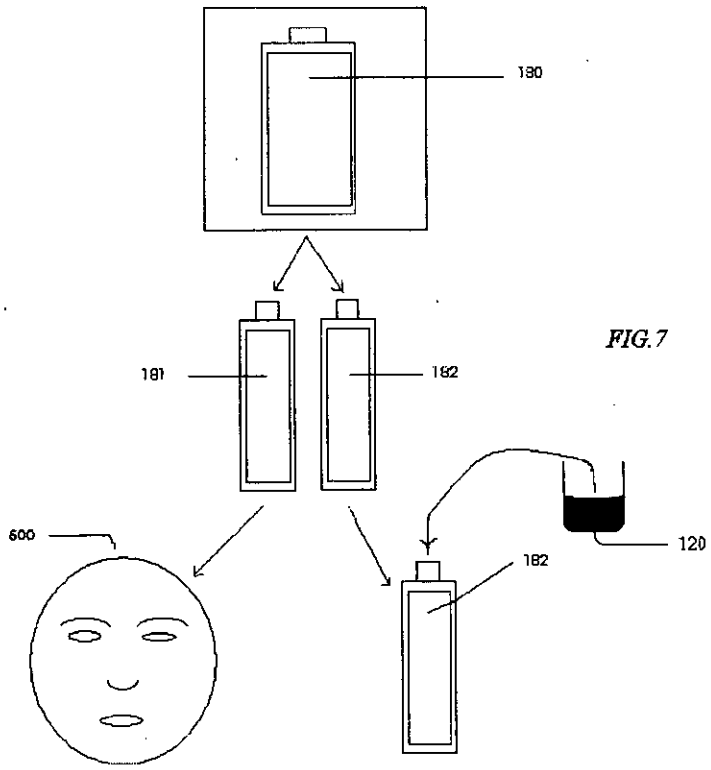

FIG.7

[Para 78] Again, in one particular embodiment 104, the said source 110 is a microwave oven enclosing the medium 180. In another particular embodiment 105, the said source 110 is made up of a magnetic coil 111 and an audio system 112 connected to the said magnetic coil with the said magnetic coil disposed adjacent to the medium 180. In yet another embodiment 106, the said source 110 is a laser disposed adjacent to the medium 180.

....

[Para 79] To use each apparatus 104, 105 or 106 having the respective embodiment, one operates the quantum entanglement source

110 with a desired output power and for a desired length of time whereby the photons generated by the said source 110 first entangle with some quantum entities inside the medium 180, and second entangle with some other quantum entities inside the same medium 180 producing quantum entanglement within the medium 180. Subsequently, to use the quantum-entangled medium 180, the said medium is divided into two or more parts.

....

[Para 84] FIG. 7 illustrates one method of beneficially using two parts 181 and 182 of a quantum-entangled medium 180 produced with apparatus 104,1 05 or 106 illustrated in FIG. 4B (or 140 and 160 produced with apparatus 101, 102 or 103 illustrated in FIG. 4A). The essential steps include providing two parts 181 and 1 82of a quantum-entangled medium 180, applying one part 181 to a biological system 500 such as a human, and contacting the other part 182 with a desired substance 120 such as a particular medication or substance encoded with a message whereby non-local effect of the substance 120 on the said biological system 500 is produced for a beneficial purpose.

With regard to the specific step of "detecting said second plurality of quantum entanglements" paragraph 85 and Figure 8A respectively describe and illustrate the heart rate monitor used to detect quantum entanglements:

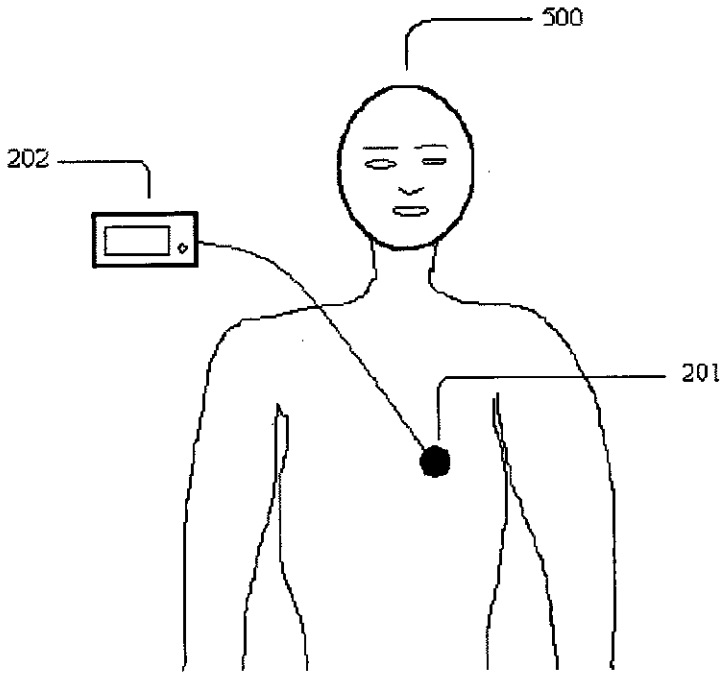

FIG. 8A

[Para 85] FIG. 8A illustrates one method of using a detecting device for objectively and quantitatively detecting and measuring a non-local effect in a biological system 500 such as a human. The essential steps include providing a detecting device (such as a heart rate monitor) comprising a probe 201 attached to the biological system 500 (such as chest area of the human) and a display mechanism 202 connected to said probe 201, or a wireless probe plus transmitter 201 attached to the biological system 500 (such as chest area of the human) and a wireless

> receiver plus display mechanism 202, and detecting a change of a physical, chemical or biological parameter (such as heart rate of the human) produced through quantum entanglement.

As with the inventions in the related cases mentioned above, we have no doubt that if Appellants' invention is able to use quantum entanglement to cause a therapeutic response in a subject by administering a pharmaceutical substance to water that is not actually consumed by that subject but was previously microwaved with water that is consumed by the subject it would be groundbreaking and revolutionary. *See* App. Br. 28. However, due to the absence of any known scientific principles explaining how Appellants' invention could possibly operate in this manner, the absence of any cogent explanation in Appellants' Specification regarding the general principals or mechanisms causing this to occur,[6] and the absence of any

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[6] That is not to say that Appellants must, in all cases, explain the scientific principles governing how a device operates if they are not known. See In re Anfhauser, 399 F.2d 275, 283 (CCPA 1968) (explaining an applicant "is not legally required to comprehend the scientific principles on which the practical effectiveness of his invention rests"). However, Appellants make no assertion here that the governing principles are unknown. Rather Appellants repeatedly asserts, citing various sources of extrinsic evidence, that the principles would be readily understood by those skilled in the art (App. Br. 20, 22) even if they are misunderstood by the Examiner (App. Br. 31—32, 53, 64). If the principles governing the operation of Appellants' method were so readily amenable to understanding we see no reason to omit an explanation of them from Appellants' Specification and Appellants' extensive briefing. The cited articles do not fill in these gaps with specific relevance to the subject matter in question presently before us. Furthermore,

verifiable test data reasonably attributable to the purported result, the Examiner reasonably characterized Appellants' invention as being of an incredible nature. *See, e.g.,* MPEP § 2107.01(11); *see also* MPEP § 2107.01(111), 2107.03 (regarding asserted therapeutic or pharmacological utilities). Despite forty-six pages of arguments and more than five-hundred pages of articles on the subject, we are not apprised of any concrete evidence or cogent technical explanations apprising us of error in the Examiner's determinations. We find no explanation as to why ordinary and conventional microwaving of water produces any meaningful quantum entanglements. Even if such entanglements did occur, there is neither sufficient evidence to demonstrate, nor cogent theory to explain why, those quantum entanglements would result in an unaltered portion of the water exhibiting therapeutic properties like those expected from water containing a therapeutic substance only by adding that substance to a different, non-consumed, portion of the water. There is no explanation offered as to why spin or any other quantum property of entangled particles would cause pharmacological changes in a discrete water sample only by virtue of having previously been microwaved with a water sample to which a pharmacological substance is added. We are also not apprised of any data logically evincing such a pharmacological interaction has actually occurred. We agree with the Examiner that heart rate changes (App. Br. 57; Spec, para. 85), even if present, do not amount to such evidence because heart rate changes

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the fundamental issue is not whether Appellant has explained how the claimed invention works. Rather, the requirements of utility and enablement consider whether Appellant's invention works as claimed.

do not necessarily demonstrate a specific pharmacological interaction. Ans. 4. The various articles cited by Appellants are either generic in nature and discuss only the possibility of quantum entanglements occurring without explaining any reason they would cause the interactions alleged in the present application, from sources regarded as having no scientific value,[7] or both.

In 1931 the predecessor to our reviewing court considered a case involving a "Method and Apparatus for Accumulating and Transforming Ether Electric Energy." The court's reasoning there is equally applicable here:

> It is fundamental in patent law that an alleged invention, to be patentable, must be not only new but useful, and that it must appear capable of doing the things claimed in order to be a device of practical utility.
>
> The rule of doubt may only be applied in favor of an applicant where the doubt is a reasonable one, that is, one founded in reason and engendered by testing the alleged invention by known scientific laws and principles.

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[7] See, e.g., IN THE NORWEGIAN REGISTER FOR SCIENTIFIC JOURNALS, SERIES AND PUBLISHERS: JOURNAL OF BIOPHYSICAL CHEMISTRY, available at https://dbh.nsd.uib.no/publiseringskanaler/KanalTidsskriftInfo.action?id=478691; NEUROQUANTOLOGY, available at https://dbh.nsd.uib.no/publiseringskanaler/KANALTiDSskriftInfo.action?id=4 73508; PROGRESS IN PHYSICS, available at https://dbh.nsd.uib.no/publiseringskanaler/KANALTiDSskriftInfo.action?id=4 73750.

Neither the Patent Office tribunals nor the courts may properly grant patents upon a mere possibility that a device might do the things claimed for it, and be useful. There must be definiteness. Neither the Constitution nor the statutes contemplate the granting of patents upon theories, nor giving a monopoly upon intellectual speculations embodied in devices incapable of scientific analysis.

The question of patentable invention ordinarily must be determined by applied science, as understood by those skilled in the art to which the invention relates, and, if one presents a device which cannot be tested by any known scientific principles, he must, at least, demonstrate its workability and utility and make clear the principles upon which it operates.

No such demonstration here appears from appellant's application, or otherwise. Three affidavits are presented of parties who claim to have seen appellant's device in operation and who vouch for its working. These affidavits, however, are brief, general in character, and give no description of the device which affiants saw. Nor do they give any explanation which contains anything tending to clarify the terminology of the specification, or to render the device measurable by engineering principles or known natural laws.

In re Perrigo, 48 F. 2d 965, 966 (CCPA 1931) (citations omitted); *accord In re Ferens,* 417 F. 2d 1072, 1074 (CCPA 1969) ("[W]here an applicant predicates utility for the claimed invention on allegations of the sort here which are or border on the incredible in light of contemporary knowledge of the particular art, those allegations must be substantiated by acceptable evidence."); *In re Eltgroth,* 419 F. 2d 918, 922 (CCPA 1970) ("The invention relates to the control of growth, aging and degeneration in living organisms, particularly to appellants' alleged discovery of what appears to be a key for the solution of the problems associated with these life processes. . . . Undoubtedly, the alleged utility of control of the aging process in living organisms and the significant beneficial results flowing therefrom is adequate. Yet, there is a conspicuous absence of proof thereof.").

For the foregoing reasons and those stated by the Examiner (Ans. 3, 5-6, 9-12), after consideration of the evidence and arguments of record, we are not apprised of error in the Examiner's position concerning a lack of utility under § 101 and a lack of enablement under § 112, first paragraph.

Written Description under § 112, first paragraph

The claims subject to the written-description rejection are argued as a group (App. Br. 6-11) for which claim 5 is representative under 37 C.F.R. § 41.37(c)(1)(iv).

> The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant

> must also convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the "written description" inquiry, whatever is now claimed.

Vas-Cath Inc. v. *Mahurkar,* 935 F.2d 1555, 1563—64 (Fed. Cir. 1991)(emphasis omitted).

Some of the Examiner's discussion (Final Act. 2-3; Ans. 3-5) regarding the written description requirement arguably relates to the operability of the device and may be more suited to the enablement/utility analysis discussed above. Nevertheless, the Examiner raises a valid point with regard to the written description requirement:

> Although some examples are listed, the examples are widely disparate and unrelated and don't provide guidance or limits as to what could or could not be a source. Similarly, Applicant discloses that any substance and any detection device can be used (see specification paragraphs 52-54). . . . The Specification does not provide any description of a mechanism for detecting quantum entanglement, but rather only discusses detecting non-local effects such as increased heart rate. This claimed subject matter is therefore not described in a way which reasonably conveys the inventor had possession of the claimed invention, i.e. a method of detecting quantum entanglement between the two targets.

Final Act. 3.

The issue raised by the Examiner concerns the breadth of the recitations related to the source and detecting aspects of the claim.

Regarding the source, Appellants' Specification provides:

> [Para 51] The said source will be, depending on a particular use, any source, such as a magnetic coil connected to a driving device, laser, microwave oven, flashlight or even a biological system, which is capable of generating quantum-entangling members such as photons, electrons, atoms or molecules when said source operates. The selection and operating specifications of the source will vary according to the use. The person skilled in the art will be able readily to determine the appropriate source and operating specifications of said source, with only routine experimentation, for optimum performance of the specific use intended.

Regarding detection, Appellants' Specification provides:

> [Para 85] FIG. 8A illustrates one method of using a detecting device for objectively and quantitatively detecting and measuring a non-local effect in a biological system 500 such as a human. The essential steps include providing a detecting device (such as a heart rate monitor) comprising a probe 201 attached to the biological system 500 (such as

> chest area of the human) and a display mechanism 202 connected to said probe 201, or a wireless probe plus transmitter 201 attached to the biological system 500 (such as chest area of the human) and a wireless receiver plus display mechanism 202, and detecting a change of a physical, chemical or biological parameter (such as heart rate of the human) produced through quantum entanglement.

The Specification provides a few examples of suitable sources and one example of a detecting method. However, claim 5 encompasses subject matter wherein anything capable of generating photons or magnetic pulses for causing quantum entanglements, whether known or unknown, described in Appellants' Specification or not, can be the source. Similarly, claim 5 encompasses subject matter wherein any method for detecting quantum entanglements, whether known or unknown, described in Appellants' Specification or not, can perform the detecting steps. In this emerging field of technology it is relatively clear that Appellants have not demonstrated possession of a sufficient number of sources and detecting techniques to broadly claim subject matter that covers all possible photon and magnetic sources that may generate quantum entanglements and all possible techniques for detecting them. Even if we were to set aside the question of operability and assume that Appellants have demonstrated possession of a limited number of sources and at least one detecting technique, the scope of the right to exclude that would be granted by claim 5 would far exceed Appellants' contribution to the art—preempting the future before it has arrived.

Patents are not awarded for academic theories, no matter how groundbreaking or necessary to the later patentable inventions of others. "[A] patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion." Requiring a written description of the invention limits patent protection to those who actually perform the difficult work of "invention"—that is, conceive of the complete and final invention with all its claimed limitations—and disclose the fruits of that effort to the public.

That research hypotheses do not qualify for patent protection possibly results in some loss of incentive .... But claims to research plans also impose costs on downstream research, discouraging later invention. The goal is to get the right balance, and the written description doctrine does so by giving the incentive to actual invention and not attempt[s] to preempt the future before it has arrived. As this court has repeatedly stated, the purpose of the written description requirement is to ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification. It is part of the *quid pro quo* of the patent grant and ensures that the public receives a meaningful disclosure in exchange for being excluded from practicing an invention for a period of time.

AriadPharms., Inc. v. *EliLilly & Co.*, 598 F. 3d 1336, 1353—54 (Fed. Cir. 2010) (en banc) (citations and internal quotations omitted).

Accordingly, we sustain the Examiner's rejection of claims 5, 7-9, 11, and 12 as failing to comply with the written description requirement.

Indefiniteness under 35 U.S.C. § 112, second paragraph

The Examiner included two grounds for rejecting the claims under 35 U.S.C. § 112, second paragraph. The first is that independent claim 5 is "incomplete for omitting essential steps, such omission amounting to a gap between the steps" which "renders the claim indefinite." Final Act. 6-7 (citing MPEP § 2172.01). The second is that independent claim 5 is indefinite because it "recites producing a non-local effect but does not specify an effect or disclose clearly how an effect is generated in a target by interacting with a medium." Final Act. 7. We do not sustain the rejection under § 112, second paragraph, on either of the grounds specified by the Examiner.

Regarding the first ground, as mentioned in the portion of the MPEP cited by the Examiner (§ 2172.01) the omission of essential elements is typically a concern addressed under the enablement requirement of the first paragraph of § 112. That same section of the MPEP also notes that the omission of essential elements may create additional issues under the second paragraph of § 112. However, although such omission might create issues under the "regards as the invention" language of

§ 112, second paragraph (MPEP § 2172.01[8]), unless there is a specific issue of claim clarity such omission, without more, relates to breadth as opposed to indefiniteness. Regarding the second ground, the Examiner points out that no specific effect is specified. Final Act. 7. This, without more, is again a question of breadth as opposed to indefiniteness. The Examiner also raises issues with regard to how the effect is generated. Final Act. 7. This relates only to a lack of clarity in the operation of the device as opposed to a lack of clarity in the metes and bounds of the claimed subject matter. Although this may relate to issues of utility and enablement, as discussed above, the Examiner has not, on the record before us, demonstrated how these issues create uncertainty as to the scope of the claimed subject matter.

With regard to claims 7 and 11, the Examiner states with regard to the limitation,

> a "magnetic coil connected to a driving mechanism, a laser device, or a microwave device". It is unclear if this is meant to mean the coil may be connected to any of these three items (driving mechanism, laser device, or microwave) or if the laser device and/or microwave are intended to be distinct sources from the coil connected to a driving mechanism.

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[8] Citing In re Collier, 397 F.2d 1003 (CCPA 1968) (holding the claim "fails to comply with section 112, second paragraph, in failing distinctly to claim what appellant in his brief insists is his actual invention").

Final Act. 7. However, in light of Appellants' consistent use of commas and semi-colons throughout the claim, only the first of the Examiner's proposed interpretations is reasonable. Thus, we are not apprised of any ambiguity in the specific clause quoted by the Examiner.

For the foregoing reasons, we do not sustain the Examiner's rejections under § 112, second paragraph on the bases set forth by the Examiner.

DECISION

The Examiner's rejections under § 101 and § 112, first paragraph are affirmed. The Examiner's rejection under § 112, second paragraph, is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(l)(iv).

AFFIRMED

APPENDIX E

(C.A.J.A. 2-13)

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HUPING HU

Appeal 2018-003120
Application 11/670,996
Technology Center 3700

Before: CHARLES N. GREENHUT, JEFFREY A. STEPHENS, and ALYSSA A. FINAMORE, *Administrative Patent Judges.*

GREENHUT, *Administrative Patent Judge.*

DECISION ON APPEAL[1]

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[1] Related appeals are: 2018-003398 in application 13/449,739; 2018-003401 in application 13/492,830; and 2018-007211 in application 11/944,631.

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from a rejection of claims 1, 3-7, 11, 14, 18, 19, 23, 24, 32-34, 36, 37, 44 and 46. We have jurisdiction under 35 U.S.C. § 6(b). Because they are matters of examination practice that do not sufficiently relate to a specific rejection of the claims before us, we lack jurisdiction over the issues of *pro se* treatment and interview requests. *In re Hengehold,* 440 F.2d 1395 (CCPA 1971); 37 C.F.R. § 1.181; *see* App. Br. 32.

We affirm.

CLAIMED SUBJECT MATTER

The claims are directed to a method for producing quantum entanglement and non-local effects of substances. Claim 1, reproduced below, is illustrative of the claimed subject matter:

Claim 1: A method of producing a plurality of quantum entanglements between a first plurality of quantum entities in a first target and a second plurality of quantum entities in a second target, a first non-local effect of said second target on said first target through said plurality of quantum entanglements and/or a second non-local effect of said first target on said second target through said plurality of quantum entanglements which comprises the steps of:

> selecting said first target which comprises a first chemical substance, water-based medium, human or animal;
>
> selecting said second target which comprises a second chemical substance, water-based medium, human or animal;

providing a photon or magnetic pulse generating source which emits a plurality of photons or magnetic pulses as quantum entanglement generating members when said source operates;

disposing said first target between said source and said second target or said second target between said source and said first target; and

driving said source to emit said photons or magnetic pulses which interact with said first plurality of quantum entities in said first target and said second plurality of quantum entities in said second target;

whereby said plurality of quantum entanglements between said first plurality of quantum entities in said first target and said second plurality of quantum entities in said second target is generated through said interactions of said photons or magnetic pulses as said quantum entanglement generating members with said first plurality of quantum entities in said first target and said second plurality of quantum entities in said second target; and said first non-local effect of said second target on said first target, comprising a first non-local effect of said second target on a first physical, chemical or biological property or process of said first target, and/or said second non-local effect of said first target on said second target, comprising a second non-local effect of said first target on a second physical, chemical or biological property or process of

said second target, are generated through said plurality of quantum entanglements.

REJECTIONS

Claims 1, 3-7, 11, 14, 18, 19, 23, 24, 32-34, 36, 37, 44, and 46 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Final Act. 2.

Claims 1, 3-7, 11, 14, 18, 19, 23, 24, 32-34, 36, 37, 44, and 46 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Final Act. 5-6.

Claims 1, 3-7, 11, 14, 18, 19, 23, 24, 32-34, 36, 37, 44, and 46 stand rejected under 35 U.S.C. § 101 because the claimed invention lacks patentable utility. Final Act. 7.

Claims 14, 18, 19, 23, and 24 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 5-12 of copending Application No. 13/492,830.[2] Final Act. 11.

OPINION

Enablement under § 112, first paragraph, and utility under §101

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[2] The double-patenting rejection is not contested and therefore not further addressed herein. "Once the provisional rejection has been made, there is nothing the examiner and the applicant must do until the other application issues." In re Mott, 539 F. 2d 1291, 1295-96 (CCPA 1976); see also MPEP § 804(1).

For each of these rejections, Appellant argues the claims as a group (App. Br. 9—26; 33—67), for which claim 1 is representative under 37 C.F.R. § 41.37(c)(1)(iv). With regard to the questions of enablement and utility, our reviewing court has summarized:

> The questions of whether a specification provides an enabling disclosure under § 112, ¶ 1, and whether an application satisfies the utility requirement of § 101 are closely related. To satisfy the enablement requirement of § 112, ¶ 1, a patent application must adequately disclose the claimed invention so as to enable a person skilled in the art to practice the invention at the time the application was filed without undue experimentation. The utility requirement of § 101 mandates that the invention be operable to achieve useful results. Thus, if the claims in an application fail to meet the utility requirement because the invention is inoperative, they also fail to meet the enablement requirement because a person skilled in the art cannot practice the invention. The how to use prong of section 112 incorporates as a matter of law the requirement of 35 U.S.C. § 101 that the specification disclose as a matter of fact a practical utility for the invention. Lack of utility is a question of fact, and the absence of enablement is a legal conclusion based on underlying factual inquiries.

In re Swartz, 232 F. 3d 862, 863 (Fed. Cir. 2000) (quotations and internal citations omitted); *see also* MPEP § 2164.07.

Paragraphs 9 and 11 of Appellant's Specification summarize the invention as follows:

> [Para 9] For example, using the apparatus and method developed in this invention I have discovered that applying magnetic pulses to a biological system such as the human brain when a substance such as a general anesthetic was placed in between caused the brain to feel the effect of said anesthetic for several hours after the treatment as if the test subject had actually inhaled the same.
>
> ....
>
> [Para 11] Further, I have verified as detailed below that said biological effect was the consequence of quantum entanglement between quantum entities inside the biological system such as the human brain and those of the substance under study induced by the photons of the magnetic pulses, laser light, microwave or flashlight.

The Examiner provided a detailed analysis, citing various evidentiary sources, including, but not limited to, those submitted by Appellant, in considering the *Wands* factors *(see In re Wands,* 858 F.2d 731 (Fed. Cir. 1988); MPEP § 2164.01) as they relate to enablement, and the question of whether the claimed invention contravenes established scientific principles, as that question relates to the utility requirement. *See* Final Act. 2-5, 7-10. We

agree with the Examiner's analysis, which raised reasonable doubts as to operability of Appellant's invention and the Specification's compliance with the enablement requirement. Appellant's arguments rely mainly on extrinsic sources that seem to bear little relevance to the particular subject matter in question here and patentability determinations made in other jurisdictions. The focus of this inquiry is on Appellant's Specification. In that regard, Appellant cites, *inter alia,* paragraphs 43 and 45 of the Specification (App. Br. 18), which, along with Figure 1A, are reproduced below to summarize an embodiment of Appellant's invention:

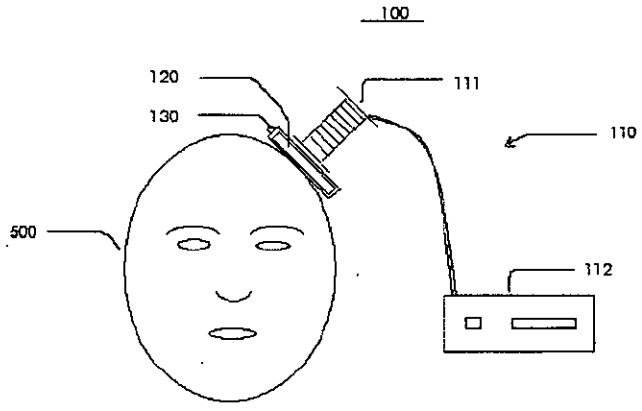

FIG. 1A

[Para 43] In one particular embodiment, the container 130 is a small glassware of the dimensions about I"x3"x4" with a useful internal volume of about 20ml, and the