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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ARASH MOFAKHAMI and TAREK NASSAR

Appeal 2018-003522
Application 13/512,065
Technology Center 3600

Before MICHAEL C. ASTORINO, JAMES A. WORTH, and KENNETH G. SCHOPFER, *Administrative Patent Judges*.

ASTORINO, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision in the Non-Final Office Action, mailed February 22, 2017, to reject claims 1, 2, 5, 9–12, 30, and 31. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. The Appellant identifies the real party in interest as "NEUSCA, 21 rue de l'Eglise, 77760 Buthiers, France." Appeal Br. 2 (The Appeal Brief lacks page numbers. We designate page 1 as the page that includes the heading "**BRIEF ON APPEAL**" and number the remaining pages in the brief consecutively therefrom.).

STATEMENT OF THE CASE

Claimed Subject Matter[2]

Claim 1 is representative of the subject matter on appeal and reproduced below.

> 1. A method for generating neutrons comprising the successive steps:
>
> a) placing at least one beam of electrons and at least one beam of nuclei chosen from protons, deuterons and tritons in a defined spin state, and
>
> b) causing said at least one beam of nuclei and at least one beam of electrons to collide along a collision direction,
>
> wherein, in the step b), the spins of the electrons and of the nuclei are aligned in a same direction as the collision direction by application of a first magnetic field applied to the nuclei and a second magnetic field applied to the electrons, and
>
> wherein, in the step b), the spins of the electrons, respectively of the nuclei, and velocity vectors of the electrons, respectively of the nuclei, are collinear, and
>
> wherein at least 50% of the nuclei forming the beam of nuclei have an energy between 1 and 10^7 eV and/or at least 50% of the electrons forming the beam of electrons have an energy between 1 and 10^7 eV.

[2] Claims 14–20 and 22–25 are withdrawn, and claims 3, 4, 6–8, 13, 21, and 26–29 are cancelled. Appeal Br., Claims App.

Rejections[3]

Claims 1, 2, 5, 9–12, 30, and 31 are rejected under 35 U.S.C. § 101 because the claimed invention is not supported by either an operable asserted utility or a well-established utility.

Claims 1, 2, 5, 9–12, 30, and 31 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.[4]

ANALYSIS

35 U.S.C. § 101

The Examiner finds claims 1, 2, 5, 9–12, 30, and 31 fail to meet the utility requirement of 35 U.S.C. § 101.[5] Non-Final Act. 4. The Examiner supports this finding, primarily, by determining that there is a lack of evidence to support operability of the claimed invention. *See, e.g.*, *id.* ("[T]he Examiner is unaware of any peer-reviewed source to indicate that colliding spin-polarized electron and proton beams would produce neutrons."). The Examiner also determines that "one of ordinary skill in the art would have cause to doubt the alleged reaction because it is not

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[3] The Examiner withdrew the rejection of claim 1 under 35 U.S.C. § 103(a). Ans. 3.

[4] We understand the Examiner's rejection as a failure to comply with the enablement requirement. *See* Non-Final Act. 5; MANUAL OF PATENT EXAMINING PROCEDURE (MPEP) § 2164.07(I)(A) ("If a claim fails to meet the utility requirement of 35 U.S.C. [§] 101 because it is shown to be nonuseful or inoperative, then it necessarily fails to meet the how-to-use aspect of the enablement requirement of 35 U.S.C. [§] 112(a) or pre-AIA 35 U.S.C. [§] 112, first paragraph." (emphasis omitted)).

[5] Whether an application discloses a utility for a claimed invention is a question of fact. *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 956 (Fed. Cir. 1983).

permissible under the present understanding of nuclear physics." *Id.* at 3 (footnote omitted).

The Appellant argues that the evidence in the record establishes "that the claimed invention has an operable asserted utility and a well-established utility." Appeal Br. 12; *see* Reply Br.[6] 2–9. The Appellant supports this argument with evidence by way of a Declaration under 37 C.F.R. § 1.132 by Guillaume Hubert ("Hubert Declaration"). The Appellant submits that the Hubert Declaration demonstrates a real-world experiment that supports the utility (operability/credibility) of the subject matter of claim 1. *See* Appeal Br. 12–15; Reply Br. 8–9. The Appellant explains that the declarant, Mr. Guillaume Hubert, "has a Ph.D. with 16 years' experience in the exact field of study recited in the claims of the present application" and carried out the experiment "at a reputable laboratory of the French Aerospace Lab (ONERA, 'Office National d'Etudes et de Recherches Aeronautiques', or otherwise known as the French aeronautics, space and defense research lab)." Reply Br. 8; *see also* Hubert Decl. ¶¶ 1–11. Hubert Declaration states,

> A demonstrator system was designed in accordance with claim 1 of the present patent application. The demonstrator system was composed from proton and electron sources providing electron and proton beams which are collided under the central axis of two magnetic coils. A magnetic field was utilized in order to align the spins (magnetic momentums) of the electrons and protons. All of the protons forming the proton beam and all of the electrons forming the electron beam had an energy less than or equal to 1 KeV.

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[6] The Reply Brief lacks page numbers. We designate page 1 as the page that includes the heading "**REPLY BRIEF**" and number the remaining pages in the brief consecutively therefrom.

Hubert Decl. ¶ 9.[7]

The Examiner responds to the evidence provided in the Hubert Declaration as follows:

> [C]laim 1 allows for the very low energy of only 1 eV. The Hubert declaration implies that a 1 KeV energy level was used. Thus, the Hubert declaration lacks evidence of the alleged neutron count rates using only a (claimed) 1 eV energy level. It follows that the Hubert declaration does not support the scope of claim 1.

Ans. 7.

We understand the Examiner's response to suggest that the claimed method is credible for an energy level of 1 KeV, but may not be credible for 1 eV. *See* Reply Br. 8. This response then begs the question, why would an energy level be credible for an energy level of 1 KeV, but not be credible for

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[7] The Hubert Declaration was filed February 18, 2016, and at the time of filing claim 1 recited:

> 1. A method for generating neutrons comprising ~~at least~~ the successive steps ~~consisting in~~:
>
> a) placing at least one beam of electrons and at least one beam of nuclei chosen from protons, deuterons and tritons in a state selected from the group consisting of: a defined spin state and[[/or in]] a spatial interference state, the beams of nuclei and of electrons placed in a spatial interference state each comprising at least one constructive interference region and at least one destructive interference region, and
>
> b) causing said at least one beam of nuclei and at least one beam of electrons to collide,
>
> wherein at least 50% of the nuclei forming the beam of nuclei have an energy between 1 and 10^7 eV and/or at least 50% of the electrons forming the beam of electrons have an energy between 1 and 10^7 eV.

Amendment 2 (filed June 15, 2015).

1 eV? *See id.* Further, we note that a fundamental premise of the Examiner's analysis concerning independent claim 1's lack of utility is based on the notion that an energy range of 1 eV – 782 KeV is "too small to allow Appellant's reaction to occur." Ans. 5. However, the results of Hubert's experimentation are directly opposed to the Examiner's premise because an energy level of 1 KeV is within the range of 1 eV – 782 KeV. Therefore, it appears that the Examiner fails to properly weigh the evidence in the experiment as described in the Hubert Declaration.

As far as the points raised by the Examiner concerning the remaining evidence of record (*see* Ans. 7–11), we determine that the remaining evidence does not outweigh the improperly weighed evidence as discussed above. Therefore, we are persuaded by the Appellant's argument that the Examiner's finding of a lack of utility of claims 1, 2, 5, 9–12, 30, and 31 is not supported by a preponderance of the evidence. Thus, we do not sustain the Examiner's rejection of claims 1, 2, 5, 9–12, 30, and 31 as failing to meet the utility requirement of 35 U.S.C. § 101.

35 U.S.C. § 112, first paragraph

The Examiner's rejects claims 1, 2, 5, 9–12, 30, and 31 under 35 U.S.C. § 112, first paragraph, "because the claimed invention is not supported by either an operable asserted utility or a well-established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention." Non-Final Act. 5. As discussed above, the Examiner's determination for rejecting the claims for a lack of utility is inadequately supported. Thus, we do not sustain the Examiner's rejection of

claims 1, 2, 5, 9–12, 30, and 31 as failing to comply with the enablement requirement of 35 U.S.C. § 112, first paragraph.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference/Basis	Affirmed	Reversed
1, 2, 5, 9–12, 30, 31	101	Utility		1, 2, 5, 9–12, 30, 31
1, 2, 5, 9–12, 30, 31	112, first paragraph	Enablement		1, 2, 5, 9–12, 30, 31
Overall Outcome				1, 2, 5, 9–12, 30, 31

REVERSED