

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after 16 March 2013, is being examined under the first inventor to file provisions of the AIA.

Claims 32-52 are pending.

Election

2. Applicant's election of species A1-B1-C-1 without traverse in the Reply filed 14 May 2019 is acknowledged. The elected species encompasses claims 32-35, 38, 40-42, 44-49, and 52. Claims 36-37, 39, 43, and 50-51 are withdrawn from further consideration as being drawn to nonelected species. The requirement is deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(b):

(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

3. Claims 32-35, 38, 40-42, 44-49, and 52 are rejected under 35 U.S.C. 112(b) as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor regards as the invention.

Claim 32

It is unclear what constitutes a “dusty” compound, especially with regard to a non-dusty compound. The border or dividing line between dusty and non-dusty is undefined.

It is unclear what is “outside a closed container”. Is it the compound, metal, chamber, reactor, or something else?

The source of the “thermal energy” is unclear.

It is unclear whether the transmutation refers to the conversion of the transition metal to another transition metal or refers to the deactivation of the radioactive material.

It is stated that the hydrogen should be in contact with both the dusty compound and the radioactive material. However, the radioactive material is encapsulated in a *closed* container. Thus, how the hydrogen contacts the radioactive material is unclear.

It is unclear whether the source of emitted protons is: the hydrogen nuclei from the gas in the chamber; protons emitted from the transition metal when undergoing a transmutation; decay of neutrons produced by an effect of ultrasound on the driver metal; nuclear waste when activated by the ultrasound; or something else.

Claim 38

The wording “the Ni” lacks proper antecedent basis.

Claim 40

The wording “during . . . ultrasonic wave generation” lacks proper antecedent basis.

Claim 41

The wording is unclear. It is unclear what “stay in the chamber”. It is also unclear whether “stay” should be stays or staying.

Claim 46

The wording is unclear. The meaning of “voluntary addition” is unclear. It is also unclear how something can be deprived if the act is voluntary.

Claim 47

The wording “the ultrasonic waves” lacks proper antecedent basis.

Claim 48

The wording “the ultrasonic waves” lacks proper antecedent basis.

Claim 49

The wording “ultrasonic waves generation period” lacks proper antecedent basis.

Objection to the Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims or the feature(s) must be canceled from the claim(s). No new matter should be entered.

The following recited feature(s) is not shown:

- a closed container (claim 32).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure

number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112 (non-enabling)

The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

(a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

5. Claims 32-35, 38, 40-42, 44-49, and 52 are rejected under 35 U.S.C. 112(a) as failing to comply with both the written description requirement and the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Neither the claims nor the specification provide sufficient information on how to generate a transmutation of the transition metal into another transition metal and thereby generate an emission of protons. Given the parameters and boundary conditions set forth in the specification (electric field strength, hydrogen pressure, temperature, etc.), one skilled in the art would not be able to execute such a transmutation or understand the alleged nuclear reaction(s) taking place.

Additionally, the disclosure (and claims), as best understood, is based on the unproven concept of low temperature nuclear fusion (cold fusion), which also has other names such as "low energy nuclear reaction" (LENR), etc. This concept relies on incorporation of nuclei (e.g., a proton) into a material to produce a fusion reaction. However, the broad scientific community has generally concluded that reactions using protons in this manner do not give rise to nuclear fusion and thus heat. Note *In re Dash*, No. 04-1145, 118 Fed. Appx. 488 (Fed. Cir. Dec. 10, 2004), cert. denied, 126 S. Ct. 346 (2005). Also note *In re Swartz*, 232 F.3d 862, 56 USPQ2d 1703 (Fed. Cir. 2000). Applicant's attention is also directed to a recent (2019) article by Berlinguette ("Revisiting the cold case of cold fusion", Nature (2019)). The article notes that a multiyear research regarding cold fusion found no evidence of anomalous effects.

Claim Rejections - 35 USC § 112 (scope of enablement)

6. Claims 32-35, 38, 40-42, 44-49, and 52 are rejected under 35 U.S.C. 112(a) because the specification, while being enabling for disclosed embodiments, does not reasonably provide enablement for non-disclosed broad embodiments.

Claim 32 (and 34, etc.) allow for: an electric field of unknown strength, heating to an unknown temperature, hydrogen at an unknown pressure above ambient pressure, use of any transition metal, and an emission of protons of an unknown energy and flux. However, the specification indicates that:

- the field strength must be above 1000 V/m [0140];
- transmutation starts only above around 180°C [0142-0143];
- hydrogen is a requirement of the process, such that a minimum pressure (e.g., 12 bar) must exist [0176];
- not all transition metals are suitable [0094]; and
- ultrasonic waves must be at least 1.3 Wm^{-2} [0141] and for which the only embodiment mentioned is at 300 kHz [0106].

Furthermore, for the deactivation of the radioactive material to take place, there will clearly be a minimum proton energy which is required for the reaction.

The claims are therefore not sufficiently supported by the original disclosure as their scope is broader than justified. Thus, the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these broad claims.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 32-35, 38, 40-42, 44-49, and 52 are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility.

The reasons the invention as disclosed is deemed inoperative are the same as the reasons set forth in the above 35 USC § 112(a) rejection.

Also, Applicant at best has set forth what may be considered a concept or an object of scientific research. However, it has been held that such does not present a utility within the meaning of 35 U.S.C. 101. See *Brenner v. Manson*, 148 U.S.P.Q. 689.

Additionally, it is well established that when, like here, the utility of the invention is based upon allegations that border on the incredible or allegations that would not be readily accepted by a substantial portion of the scientific community, sufficient substantiating evidence of operability must be submitted by Applicant. Note *In re Houghton*, 167 U.S.P.Q. 687 (CCPA 1970); *In re Ferens*, 163 U.S.P.Q. 609 (CCPA 1969); *Puharich v. Brenner*, 162 U.S.P.Q. 136 (CA DC 1969); *In re Pottier*, 152 U.S.P.Q. 407 (CCPA 1967); *In re Ruskin*, 148 U.S. P.Q. 221 (CCPA 1966); *In re Citron*, 139 U.S.P.Q. 516 (CCPA 1963); and *In re Novak*, 134 U.S.P.Q. 335 (CCPA 1962). One of ordinary skill in the art would doubt the operability of the invention.

Objection to Specification

8. The claimed invention as disclosed is deemed non enabling. For the same reasons discussed above, the specification is objected to as being directed to an inoperable device.

Additional Comment

9. Despite their lack of clarity (as noted above in the 35 U.S.C. 112 rejections), claims have not been rejected based on prior art. Nevertheless, it should be understood that clarification of the application (e.g., via claim amendment) may necessitate a future prior art rejection thereof.

Application Status Information

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. For questions on access to the Private PAIR system, contact the Electronic Business Center at 866-217-9197 (toll-free). For assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (in USA or Canada) or 571-272-1000.

Interview Information

11. Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, Applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

Contact Information

12. Any inquiry concerning this communication should be directed to examiner Daniel Wasil whose telephone number is (571) 272-4654. The examiner can normally be reached on Monday-Thursday from 10:00-4:00 EST.

The examiner's supervisor, SPE Jack Keith, can be reached at (571) 272-6878.
The central fax number for the Patent Office is 571-273-8300.

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