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Entered: December 31, 2019

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Anatoli Ledenev
and
Robert M. Porter**,**
Junior Party
(Patent 8,004,116),

v.

Meir Adest,
Guy Sella, Lior Handelsman, Yoav Galin,
Amir Fishelov, Meir Gazit, Yaron Binder
and
Nikolay Radimov,
Senior Party
(Application 13/430,388).

Patent Interference No. 106,054 (JTM)
(Technology Center 2800)

Before SALLY G. LANE, JAMES T. MOORE, and DEBORAH KATZ, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*

JUDGMENT - Bd. R. 127(a)

A decision granting Motion 1 of senior party Meir Adest, Guy Sella, Lior Handelsman, Yoav Galin, Amir Fishelov, Meir Gazit, Yaron Binder and Nikolay Radimov has been entered. (Decision, Paper 186). As a result of this Decision, all the involved claims of senior party Anatoli Ledenev and Robert M. Porter are unpatentable to Ledenev and Ledenev lacks standing to continue in the interference. Bd. R. 201. Accordingly, we enter judgment against Ledenev.

Order

It is

ORDERED that judgment on priority is entered against junior party Ledenev as to Count 1, the sole Count of the interference (Declaration, Paper 1, 4);

FURTHER ORDERED that claims 1–29 of Ledenev patent 8,004,116, which correspond to Count 1, are CANCELED. (Declaration, Paper 1, 4); 35 U.S.C. § 135(a);[1]

FURTHER ORDERED that the parties are directed to 35 USC § 135(c) and Bd. R. 205 regarding the filing of settlement agreements;

FURTHER ORDERED that a party seeking judicial review timely serve notice on the Director of the United States Patent and Trademark Office; 37 C.F.R. §§ 90.1 and 104.2. *See also* Bd. R. 8(b). Attention is directed to *Biogen Idec MA, Inc., v. Japanese Foundation for Cancer Research*, 785 F.3d 648,

[1] Any reference to a statute in this Judgment is to the statute that was in effect on March 15, 2013 unless otherwise indicated. See Pub. L. 112-29, § 3(n), 125 Stat. 284, 293 (2011).

654–57 (Fed. Cir. 2015) (determining that pre-AIA § 146 review was eliminated for interference proceedings declared after September 15, 2012); and

FURTHER ORDERED that a copy of this judgment be entered into the administrative records of the involved Ledenev patent and involved Adest application.

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Anatoli Ledenev[1]
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Patent Interference No. 106,054 (JTM)
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MOORE, *Administrative Patent Judge*

DECISION ON MOTIONS

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[1] The real party in interest is identified as AMPT, LLC. Paper 10, 1.

[2] The real party in interest is identified as Solaredge Technologies, Ltd. Paper 5, 1.

37 C.F.R. § 41.125

I. BACKGROUND

An interference was declared between application 13/430,388 ("Junior Party" or "Adest") and patent 8,004,116 ("Senior Party" or "Ledev"). Paper 1. The interference was redeclared to correct the accorded benefit dates. Paper 14.

After a conference call, the Board authorized numerous motions to be filed. Paper 17. Those authorized motions included Ledenev Motion 3 (no interference-in-fact); Ledenev Motion 4 (designating claims as not corresponding to the count); Adest Motion 1 (unpatentability of Ledenev claims 1–29); and Adest Motion 2 (motion for benefit).

After a second conference call, the Board authorized Ledenev Motion 7 (unpatentability, all claims). Paper 55. The Board also granted Ledenev Motion 8 seeking permission to file a reissue application. Paper 103.

The various motions, oppositions, and replies have been filed. The Board has awaited an initial determination on the fate of reissue application 15/469,087. In the absence of any such determination being presented to us to date, the Board has now elected to proceed with this interference on the present record to prevent further delay.

II. THE TECHNOLOGY

This interference concerns photovoltaic power systems that are said to be highly efficient. Ex. 2001, Title. There are many variables that affect a photovoltaic system, including non-uniformity of panels, partial shade, dirt or accumulated matter on the panels, damaged panels, and degradation due to age of

the panels. *Id.* 2:38-44 There are many ways to interconnect panels, converters, and controllers. *Id.* 2:45-59.

In Ledenev's description of the technical field of the subject matter, it is said that certain aspects of the invention may be responsible for the high efficiency and harvest maximum power from a solar cell, a solar panel, or strings of panels. These aspects include providing electrical power conversion in a multimodal manner, establishing a system that can alternate between differing processes, and differing systems that can achieve efficiencies in conversion that are said to be extraordinarily high compared to traditional systems. Ex. 2001, 1:20–31.

III. The Interference Count

The count is a "McKelvey" count, and recites the subject matter of the present interference. More specifically, the count comprises two alternatives –

> Application 13/430,388, Claim 62. An efficient solar energy power system comprising:
>
> a plurality of solar panels, each solar panel of said plurality of solar panels having a DC photovoltaic output;
>
> a plurality of DC photovoltaic inputs, each DC photovoltaic input configured to receive power from a respective one of said DC photovoltaic outputs of said plurality of solar panels;
>
> a plurality of buck+boost DC-DC power converters, each buck+boost DC-DC power converter configured to receive said power from a respective one of said plurality of said DC photovoltaic inputs, and each buck+boost DC-DC power converter configured to convert substantially all of said power accepted by said respective DC photovoltaic input to converted DC power;
>
> a control circuit configured to control each of said buck+boost DC-DC power converters to convert substantially all of said power accepted by said respective DC photovoltaic input to said converted DC power, and

wherein said control circuit is configured to control each of said buck+boost DC-DC power converters into multiple configurations;

a converted DC power output coupled to said plurality of buck+boost DC-DC power converters and configured to receive said converted DC power;

a DC-AC inverter configured to receive said converted DC power from said converted DC power output; and

an AC power output configured to receive converted AC power from said DC-AC inverter.0

or

Patent 8,004,116 Claim 1. An efficient solar energy power system comprising:

a plurality of solar panels, each said solar panel having a DC photovoltaic output;

a DC photovoltaic input that accepts power from said DC photovoltaic output;

at least one substantially power isomorphic photovoltaic DC-DC power converter responsive to at least one said DC photovoltaic input;

substantially power isomorphic maximum photovoltaic power point converter multimodal functionality control circuitry to which said at least one substantially power isomorphic photovoltaic DC-DC power converter is responsive;

a converted photovoltaic DC power output connected to said at least one substantially power isomorphic photovoltaic DC-DC power converter;

at least one photovoltaic DC-AC inverter responsive to said photovoltaic DC power output; and

a photovoltaic AC power output responsive to said at least one photovoltaic DC-AC inverter.

(Paper 1, 4; Paper 7, 3–4; Ex. 2001, 22:48–67).

A "buck" converter is a step-down converter, while a "boost" converter is a step-up converter. Ex. 2001, 11:28–29 and 44.

IV. Ledenev Motion 7 (Paper 61)(Unpatentability)

We take up Ledenev Motion 7 first. We permitted Ledenev Motion 7 to be filed as it was potentially dispositive of the interference. Paper 55, Page 4.

Ledenev Motion 7 challenges the patentability of Adest claims 62–66, 68–81, 83–94, and 138. Paper 61, 1.

The cited art in the motion is as follows:

Seki, et al., US Patent 6,636,431, issued October 21, 2003 (hereinafter "Seki", Ex. 2017).

Linear Technology Spec Sheet, LTC3780 High Efficiency, Synchronous, 4-Switch Buck-Boost Controller, LT0413 Rev F 1-30 (2005) (hereinafter "LTC3780", Ex. 2018).

Roy, et al., Battery Charger Using Bicycle, EE318 Electronic Design Lab Project Report, EE Dept., IIT 1-12 (April 2006) (hereinafter "Roy", Ex. 2019).

Chomsuwan, et al. Photovoltaic Grid-Connected Inverter Using Two-Switch Buck-Boost Converter, IEEE 1527-1530 (2002) (hereinafter "Chomsuwan", Ex. 2020).

Caricchi, et al., 20kW Water-Cooled Prototype of a Buck-Boost Bidirectional DC-DC Converter Topology for Electrical Vehicle Motor Drives, 18 Via Eudossiana 00184, 887-892 (1995) (hereinafter "Carrichi", Ex. 2021).

Nino, US Patent Application Publication No. 2005/0218876A1, published October 6, 2005 (hereinafter "Nino", Ex. 2022).

Linear Technology Spec Sheet, LTC3440 Micropower Synchronous Buck-Boost DC/DC Converter LT0814 Rev C 1-20 (2001) (hereinafter "LTC3440", Ex. 2023).

Midya, et al., Buck or Boost Tracking Power Converter, 2 IEEE Power Electronics Letters 4, 131-134 (2002) (hereinafter "Midya", Ex. 2024).

Viswanathan, et al., Dual-Mode Control of Cascade Buck-Boost PFC Converter, 35th Annual IEEE Power Electronics Specialists Conference 2178-2184 (2004) (hereinafter "Viswanathan", Ex. 2025).

We begin with Adest claim 62. Appendix 3 to Ledenev Motion 7 states that Seki is an anticipatory reference for claim 62, and that Seki in combination with Chomsuwan renders claim 62 obvious along with LTC3780 and Chomsuywan. Paper 61, 27.

Ledenev asserts that, as regards the independent claims (including claim 62):

> The Adest independent claims, claims 62, 78 and 81, generally claim simply a converter (specifically, a buck+boost DC-DC power converter) that is connected between solar panels on one side of it and an inverter (that converts DC power to AC power) on the other. The solar panels provide DC power, the converters convert it, and the inverter turns it into AC. To this basic manner of hooking up a converter to deliver AC power from solar panels, the independent claims also add limitations relative to efficiency or maximum power point control. Ex. 2012, ¶14.

Paper 61, 3.

We observe that claim 62 has several elements, simplified here for sake of discussion:

- a plurality of solar panels,

- a plurality of DC inputs,

- a plurality of buck+boost DC-DC power converters,

- a control circuit configured to control each of said buck+boost DC-DC power converters and configured to control each of said buck+boost DC-DC power converters into multiple configurations;

- a converted DC power output;

- a DC-AC inverter; and

- an AC power output.

In short, Adest claim 62 claims a control circuit that can reconfigure each of the power converters connected individually to the solar panels, and convert those controlled DC outputs to AC power through an inverter.

In Appendix 2 of Motion 7, Ledenev asserts that:

> 5. Seki discloses Adest's buck+boost converter (Ex. 2012, p. 62, 2nd row, 2nd column) in a photovoltaic harvesting application (Ex. 2012, p. 61, 2nd row for claim 62, 2nd column, ignoring the claim number column) with an ability to convert at efficiencies up to about 98%. It also discloses an inverter (inherently) (Ex. 2012, p. 63 (3rd row, 2nd column)), converted output stringing (Ex. 2012, p. 68, 5th row, 2nd 15 column), or stringing that renders such configuration obvious. Ex. 2012, ¶¶ 39-41.

We are then pointed to Seki Figure 8 (Paper 61, 9–10) as illustrating the elements of Claim 62. Original Figure 8 is reproduced below:

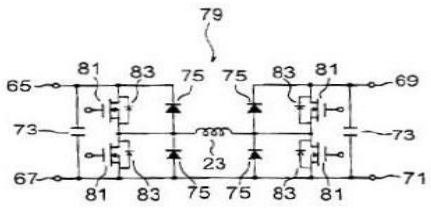

FIG. 8

This figure is said to be "topologically the same as that of Fig. 7 of the Adest '815 provisional application" which is asserted to be the same as claim 62. Paper 61, 10. Exactly how, though, is unexplained in the briefing and left to us to decipher.

As regards Figure 8, Seki states:

> Referring to FIG. 8, a symmetrical DC/DC converter 79 according to a fourth embodiment of this invention uses FETs 81 as the switching circuits 77 (77a-77d.) illustrated in FIG. 7. Each of the FETs 81 has a body diode 83 which can be used as a rectifier.
>
> As illustrated in FIG. 8, the diode 75 as a high performance diode which is low in forward voltage Vf than the body diode 83 and short in recovery time is connected in parallel to the body diode 83 of each FET 81 to be oriented in the same direction. With this structure, the symmetrical DC/DC converter 79 is operable irrespective of the body diode 83.
>
> Referring to FIG. 9, a symmetrical DC/DC converter 85 according to a fifth embodiment of this invention has a structure in which the diode operation in the DC/DC converter in FIG. 8 is realized by synchronous rectification so as to improve the efficiency.
>
> Specifically, in the fifth embodiment, a diode 21 is connected to one end of each FET 81 through a resistor 87 so as to perform analog control in a manner such that the output of an operational amplifier 89 is not saturated on a minus side.
>
> As described above, according to the first through the fifth embodiments of this invention, it is possible to provide a symmetrical

> DC/DC converter operable in a desired energy transfer direction and at a desired step-up or a desired step-down ratio.

Ex. 2017, 5:59–6:15. We find that Seki thus describes a controlled step up or step down converter which can operate bidirectionally.

Further, Ledenev points to witness testimony, apparently in the place of explanatory briefing:

> Appendix 2 of the Second Declaration of Eric A. Seymour (Prior Art Reference Claim Charts (Adest Claims)) presents Mr. Seymour's opinion that all Adest claims are unpatentable, in the form of a claim chart for each of two exemplary pieces of prior art treated as primary references – Seki and LTC3780. See also, Ex. 2012, ¶¶28 and 29, pp. 60-103, and Appendix 3 (p. 105).
>
> As shown in Appendix 1 of Mr. Seymour's 2nd Declaration (the Construction Chart for Adest Claims), Adest's independent claims – claims 62, 78 and 81 – describe a certain type of converter electrically connected in a very straightforward manner (which was well known at the time of their filing in 2006 as shown, e.g., in Chomsuwan (Ex. 2020, p. 1527, Fig. 1) to collect solar power and deliver it to an inverter, which then converts it to AC power so it can be delivered to, e.g., the power grid. Ex. 2012, pp. 47-48 (claim 62)…"

Paper 61, 8.

We discern from these arguments we have found for claim 62 within Ledenev Motion 7, the argument and evidence for unpatentability of claim 62 is that Seki describes a buck+boost converter in a photovoltaic harvesting apparatus with an efficiency of up to 98%, an inverter (inherently), and converted output stringing. Ledenev then asserts the skilled artisan would have combined LTC3780

which describes 98% efficiency, and Chomsuwam, which describes maximum power point control, would have been obvious because all relate to dual mode DC power conversion, and the motivation to provide enhanced efficiency. Paper 61, 11. While this may in fact be true, we are left without guidance as to how the art directs us to the elements arranged as claimed in Adest's claims. A claim chart in the motion would have been useful. *See*, e.g. 37 C.F.R. § 41.121 (e).

In search of further detail within the motion, we look to the specifically cited Figure in Chomsuwan. It is reproduced below.

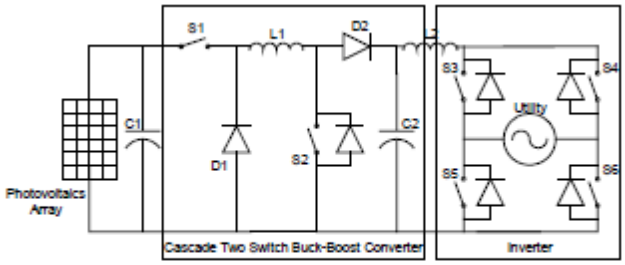

Fig. 1. The proposed system.

Ex. 2020, 1527.

Figure 1 depicts the proposed system.

It is evident to us that there is a photovoltaic array connected to a buck+boost converter and thence to an inverter and from there potentially to a utility.

However, it is not apparent to us, from a careful reading of Ledenev Motion 7, how Ledenev urges that all this ties in to the specific claim language of claim 62. More specifically, and *inter alia*, we do not see where Ledenev

Motion 7 asserts the plurality of converters are to be found or where the control circuit of claim 62, which can reconfigure the converters, are to be found.

We are pointed, without the benefit of specific argument, to the additional testimony of witness Eric Seymour, presented as Exhibit 2012. This approach violates 37 CFR § 106 (b) (3) and the Standing Order ¶ 106.2, prohibiting the incorporation of arguments by reference.[3] In our view, the motion has not made out a case of unpatentability of claim 62 to this point.

At this stage, we must address a procedural point raised by Adest. Adest asserts that this incorporation by reference by Ledenev is improper. Paper 93, 6. Adest is correct, for the reasons noted above. Adest further asserts that without the incorporation by reference, the motion fails to make out a case. *Id.* 7-9. We, to this point in this decision, agree with Adest on this issue.

Ledenev takes issue with the Adest's assertion that absent incorporation by reference, it failed to make out a case, at least for the independent claims. More specifically, Ledenev asserts in reply that:

> Sufficient detail as to all independent claim limitations appears explicitly in Ledenev Motion 7 (see, e.g., p. 11, l. 2-6, p. 12, l. 4-6 and p. 13, l. 20-22 regarding efficiency; p. 9, l. 13-14 and p. 13, l. 18-20 regarding converter control; p. 9, l. 3-8 and 11, l. 11-12 regarding solar application; p. 13, l. 12-20 and p. 14, l. 5-8 regarding converter-to-panel connection; p. 14, l. 5-8 regarding inverter limitation; p. 13, l. 18-19 regarding MPP (found in Adest claim 81 only); and p. 13, l. 18-20 regarding strings of panels (found in claim 81 only), all of Ledenev Motion 7, Paper No. 61).

[3] Adest Opposition 7 notes that, absent this improper incorporation by reference, the motion likely fails. Paper 93, 7-9.

Paper 118, 1. Again, the panel is left to hunt for the meaning to these strings of evidentiary citations and how one of ordinary skill in the art would tie them to the specific structures claimed and arranged in each claim.

Ledenev also points us to Appendix One of Exhibit 2012 for its arguments concerning construction of the claims. Paper 61, 3. Again, these arguments are not contained in the brief.

We therefore determine that the motion does not put forth a sufficient meaningful argument *in the motion itself* to establish the elements of unpatentability of the independent claims.

Continuing, as regards the dependent claims, Ledenev states:

> Any alleged insufficiently specific treatment in Ledenev Motion 7 of certain other dependent claims is, respectfully, insufficient reason to ignore Ledenev's motion as to such claims for the following reasons:
>
> (i) Ledenev Expert Declaration II (Ex. 2012) presents arguments on a numbered claim basis, so, respectfully, a reader can still expeditiously gather arguments as to all dependent claims beyond Ledenev Motion 7 itself.
>
> (ii) Ledenev's arguments were lengthy because of requirements to: construe every single limitation of 32 claims; show each limitation of each of such claims in the art; and rebut the 41 C.F.R. 207(c) presumption; and
>
> (iii) the prior art does indeed render such claims unpatentable, and allowing unpatentable claims to issue due to any alleged imperfect rule compliance would disserve the public interest.

Paper 118, 1-2.

We find statement (i) to be an attempt to bypass the Board's express rules. The content of the briefs and the page limitations are set at 37 CFR § 41.106. We

will not disregard the rules and look "beyond Ledenev Motion 7 itself" for arguments which by rule must have appeared in the brief. We also find statement (ii) to be unpersuasive because the Board is always available for requests for relief from the rules by miscellaneous motion if sufficient justification is given. Standing Order ¶ 3.1. No request to enlarge the page limits was made with a persuasive reason. Nor was a request for a conference call to discuss the matter made. Statement (iii) is unpersuasive because it assumes the burden of proof has been met, when we cannot determine effectively at this stage whether it has. It is only the assertion of counsel that they will prevail, which is not evidence thereof.

The arguments concerning the remaining claims suffer from this same infirmity.

Ledenev Motion 7 is therefore denied.

V. Adest Motion 1 – (Paper 49) (Unpatentability)

Adest moves for judgment against Ledenev on the grounds that all claims in U.S. Patent No. 8,004,116 are unpatentable under Pre-AIA 35 U.S.C. § 112, first and second paragraphs, for failing to contain sufficient written description of the invention, and for failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention. Paper 49, 1.

A. *Indefiniteness*

1. Legal Principles

"[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention."

Nautilus, Inc. v. Biosig Instruments, Inc., 572 U.S. 898, 901 (2014).

2. Discussion

"*said photovoltaic output" "said photovoltaic DC power output," and "at least one said DC photovoltaic input"*

Adest first asserts that each of Ledenev independent claims 1, 17, and 20 is indefinite because a person of ordinary skill in the art cannot determine its scope with reasonable certainty. Paper 49, 9. More specifically, Adest asserts it is uncertain whether the claim requires a plurality of solar panels to operate with a single power converter and inverter, or instead, requires each solar panel to operate with its own dedicated power converter and inverter. This is said to be because these claims are replete with ambiguous antecedent problems with respect to outputs/input for these elements in the phrases, "said DC photovoltaic output," "said photovoltaic DC power output," and "at least one said DC photovoltaic input." *Id.*

We begin with claims 1, 17, and 20.

Claim 1 recites as follows:

> 1. An efficient solar energy power system comprising:
> a plurality of solar panels, each said solar panel having a DC photovoltaic output;
> a DC photovoltaic input that accepts power from said DC photovoltaic output;
> at least one substantially power isomorphic photovoltaic DC-DC power converter responsive to at least one said DC photovoltaic input;
> substantially power isomorphic maximum photovoltaic power point converter multimodal functionality control circuitry to which said at least one substantially power

isomorphic photovoltaic DC-DC power converter is responsive;

a converted photovoltaic DC power output connected to said at least one substantially power isomorphic photovoltaic DC-DC power converter;

at least one photovoltaic DC-AC inverter responsive to said photovoltaic DC power output; and

a photovoltaic AC power output responsive to said at least one photovoltaic DC-AC inverter.

Ex. 2001, 22:48–67.

Claim 17 recites as follows:

17. An efficient solar energy power system comprising:

a plurality of solar panels, each said solar panel having a DC photovoltaic output;

a DC photovoltaic input that accepts power from said DC photovoltaic output;

first modality photovoltaic DC-DC power conversion circuitry responsive to said DC photovoltaic input;

second modality photovoltaic DC-DC power conversion circuitry responsive to said DC photovoltaic input;

at least one photovoltaic DC-DC power converter responsive to at least one said DC photovoltaic input;

high efficiency multimodal converter functionality control circuitry to which said at least one photovoltaic DC-DC power converter is responsive and wherein said high efficiency multimodal converter functionality control circuitry is configured to switch at least some times between said first modality photovoltaic DC-DC power conversion circuitry and said second modality photovoltaic DC-DC power conversion circuitry;

a converted photovoltaic DC power output connected to said at least one photovoltaic DC-DC power converter;

at least one photovoltaic DC-AC inverter responsive to said photovoltaic DC power output; and

a photovoltaic AC power output responsive to said at least one photovoltaic DC-AC inverter.

Ex. 2001, 25:63–26:21.

Claim 20 reads as follows:

20. An efficient solar energy power system comprising:
at least one string of a plurality solar panels, at least one of said solar panels having a DC photovoltaic output;
a DC photovoltaic input that accepts power from said DC photovoltaic output;
at least one multiple panel dedicated substantially power maximum photovoltaic power point DC-DC power converter responsive to at least one said DC photovoltaic input;
maximum photovoltaic power point converter multimodal functionality control circuitry to which said at least one multiple panel dedicated substantially power maximum photovoltaic power point DC-DC power converter is responsive;
a converted photovoltaic DC power output connected to said at least one multiple panel dedicated substantially power maximum photovoltaic power point DC-DC power converter;
at least one photovoltaic DC-AC inverter responsive to said photovoltaic DC power output; and
a photovoltaic AC power output responsive to said at least one photovoltaic DC-AC inverter.

Ex. 2001, 26:44–67.

Each of these claims, generically, claim a solar power system including solar panels with outputs, some form of control, a DC-DC power converter that accepts power through an input, DC power outputted to a DC-AC converter, and AC power output.

said DC photovoltaic output" (claims 1,17, and 20)
"at least one said DC photovoltaic input" (claim 1, 17, and 20)

According to Adest, each of independent claims 1, 17, and 20 is indefinite because a person of ordinary skill in the art cannot determine its scope with reasonable certainty. Adest asserts that it is uncertain whether the claim requires a plurality of solar panels to operate with a single power converter and inverter, or instead, requires each solar panel to operate with its own dedicated power converter and inverter. Paper 49, 9.

First, Adest asserts that "said DC photovoltaic output" lacks antecedent basis in claims 1, 17, and 20. More specifically, these claims are said to introduce "a plurality of solar panels, each [or at least one of] said solar panel having a DC photovoltaic output" and therefore the scope of the claims include a plurality of DC photovoltaic outputs, rendering subsequent reference to a singular "said DC photovoltaic output" ambiguous as to which of the plurality of DC photovoltaic outputs "said DC photovoltaic output" is referring. *Id.* 9-10.

Second, Adest asserts that "said photovoltaic DC power output" lacks antecedent basis in claims 1, 17, and 20. Those claims introduce "a DC photovoltaic output" and "a converted photovoltaic DC power output." Adest observes that "said photovoltaic DC power output" is an ambiguous mix of these two previously introduced distinct elements, and a person of ordinary skill in the art cannot determine with reasonable certainty which, if any, of these different

outputs is referenced by "said photovoltaic DC power output," rendering claims 1, 17, and 20 indefinite. *Id.* 10-11.

Third, Adest asserts that "at least one said DC photovoltaic input" also lacks antecedent basis in claims 1, 17, and 20. These claims introduce the singular "a DC photovoltaic input" and Adest notes that "at least one said DC photovoltaic input" indicates that the input is selected from among a plurality of inputs; otherwise, "at least one" would be superfluous. Accordingly, Adest asserts a person of ordinary skill in the art cannot determine with reasonable certainty which inputs are referenced in the phrase "at least one said DC photovoltaic input," rendering these claims indefinite. *Id.* 11.

Initially, we are not persuaded that there is a lack of antecedent basis for the term "said DC photovoltaic output." It appears to us each panel has an output, and that is the antecedent basis for "said output" which is referenced by the singular following "input." Ex. 2001, 22:49–50 and 51–52. The plurality of panels in the claim ensures there will be a plurality of these outputs and inputs, at least for claim 1.

We also are not persuaded of ambiguity in the use of the terms "said photovoltaic DC power output," "a DC photovoltaic output," and "a converted photovoltaic DC power output." The claim recites a DC photovoltaic output providing power to a DC photovoltaic input; providing converted photovoltaic DC power output and providing that power to an inverter. Ex. 2001; 22:48–67. To the extent Adest appearts to be arguing that the word "converted" was not carried forward to the next element of the claim, it is apparent to us that one of ordinary

skill in the art would understand the functioning of the system. We find this argument unconvincing.

To the third point, Ledenev asserts that the claims themselves cover one converter per panel and also one converter per plurality of panels, and such is made clear by reference to the specification and claim 20. Paper 78, 4. Ledenev specifically points to claim 25 of the '116 patent, which describes one converter per plurality of panels. *Id.* Professor Seymour[4] so testifies as well. Ex. 2028, ¶ 11.

But we fail to see why these potential alternatives are, in this instance, necessarily ambiguous - although they may render the claim broad and inclusive of many embodiments. The use of "at least one" opens the claim up to the point where there may, and may not, simultaneously be a plurality of each device feeding others or receiving feeds from other devices.

Indeed, we credit the testimony of Eric Seymour's Third Declaration that the energy source can be a single panel or a string of panels. Ex. 2028, ¶ 11. He observes that claim 25 recites a choice of at least one individual panel dedicated converter and at least one multiple panel dedicated converter. To our way of thinking, the claim covers all these alternatives and one of ordinary skill in the art

[4] We find Professor Seymour to be qualified to testify as to the technical subject matter of this interference. Ex. 2012, ¶¶ 4–8.

could determine whether a particular arrangement falls within the scope of the claim.

To this end, we find ourselves in agreement with Ledenev that claim 25, which is dependent on claim 17 and specifically recites both sets of possibilities, is instructive as to the claim interpretation. Ex. 2001, 28:40–47. Although the claim is broad, we are not persuaded that it is indefinite. We are therefore unpersuaded by this first group of contentions from Adest.

"substantially power isomorphic"

Adest also asserts that the term "substantially power isomorphic" has no meaning in the art and as a consequence claims 1–3, 5, 6, 9–11, 18, 19, 21, and 24–27 are indefinite. Paper 49, 13. Adest relies upon the testimony of Marc E. Herniter in support of this contention.[5] Professor Herniter testifies that, despite consulting the Random House Webster's Unabridged Dictionary, he was unable to find a definition of "isomorphic" that pertained to power conversion. Ex. 1004, ¶¶ 27–28. He also testifies that the specification includes only a brief discussion of the term, and that discussion would leave one of ordinary skill in the art unsure what the features of a substantially power isomorphic power conversion were, be they efficiency or other feature. *Id.* ¶¶ 32–33.

Ledenev, on the other hand, urges that one of ordinary skill in the art can easily discern from the specification the definition of substantially power

[5] We find Professor Herniter to be qualified to testify as to the technical subject matter of this interference. Ex. 1004, ¶¶ 4–7.

isomorphic. Paper 78, 11–13. This is said to be because the description establishes that "substantially power isomorphic" requires conversion without generating substantial heat, at from 97% efficiency to 99.2% or wire loss transmission efficiency. Ex. 2001, 13:8-28. We are pointed to the following passages:

- "It [the system] can even provide a substantially power isomorphic photovoltaic DC power conversion that does not substantially change the form of power into heat rather than electrical energy by providing as high as 99.2% efficiency." Ex. 2001, col. 13, l. 16-20.

Professor Seymour testifies that because isomorphism and low heat generation both appear for the first time, in the same sentence, and because both are presented in an explicatory manner ("provide … isomorphic … power conversion that does not … change … power into heat rather than electrical energy"), a person having ordinary skill in the art would have known with reasonable certainty that isomorphic conversion results in low heat generation. Ex. 2028, ¶ 32

- The same paragraph introducing the "isomorphic" term states that "such operation [isomorphic converter control] can be at levels of 20 from 97%, 97.5, 98, 98.5 up to either 99.2 or essentially the wire transmission loss efficiency…" Ex.2001, col. 13, l. 25-27.

Dr. Seymour testifies that highly efficient power conversion was known in 2007 and the specification defines the levels. Ex. 2028, ¶ 33.

- Claim 5 recites "isomorphic…converter…control circuitry is selected from the group consisting of: at least about 98% efficient…circuitry, at least about 98.5% efficient…circuitry…." Ex. 2001, 23:23-39.

In reply, Adest urges that the "substantially power isomorphic" term recites that it "can" have certain efficiencies, but does not require them, and the open ended list of efficiencies is not a clear definition, and consequently the term is indefinite. Paper 115, 8–9.

We have carefully weighed the testimony of Professor Seymour (Ex. 2028) ("A PHOSITA would have known that the efficiencies indicated in this passage relate to, and define, isomorphism" ¶ 31) versus that of Professor Herniter that "one of ordinary skill in the art would not know how the phrase 'substantially isomorphic power' defines or limits the 'photovoltaic DC-DC power converter' as recited in claim 1." Ex. 1004, ¶ 28.

On balance, we find the evidence of record supports the testimony of Professor Seymour rather than Professor Herniter. We find the term isomorphic to be capable of being reasonably interpreted as keeping power in its electrical form without dissipating it as substantial amounts of heat. We find the specification particularly persuasive on this point. It is reproduced below in pertinent part:

> As mentioned earlier, an aspect of significant important is the level of efficiency with which the converter operates. This is defined as the power going out after conversion over the power coming in before conversion. A portion of the efficiency gain is achieved by using switchmode operation of transistor switches, however, the topology is far more significant in this regard. Specifically, by the operation of switches and the like as discussed above, the system can go far beyond the levels of efficiency previously

> thought possible. It can even provide a substantially power isomorphic photovoltaic DC-DC power conversion that does not substantially change the form of power into heat rather than electrical energy by providing as high as about 99.2% efficiency. This can be provided by utilizing substantially power isomorphic photovoltaic converter functionality and a substantially power isomorphic photovoltaic impedance converter and by controlling operation of the switches so that there is limited loss as discussed above. Such operation can be at levels of from 97, 97.5, 98, 98.5 up to either 99.2 or essentially the wire transmission loss efficiency (which can be considered the highest possible).

Ex. 1001, 13:8–28.

We read the specification as more limiting than Adest asserts, and along the lines admitted as limiting by Ledenev. While it is true that the efficiency levels are stated using the term "can be" and not "must be," we find that these efficiency levels give one of ordinary skill in the art a reasonable range to apply to the term "substantially power isomorphic." Accordingly, we are unpersuaded by this contention.

Adest also appears to assert indefiniteness in that "substantially power isomorphic photovoltaic DC-DC power conversion" is provided by three features in Ledenev's specification. Paper 49, 15. More specifically:

- "utilizing substantially power isomorphic photovoltaic converter functionality." Ex. 1001, 13:21-22;

- utilizing "a substantially power isomorphic photovoltaic impedance converter." Ex. 1001, 13:22-23; and

- "controlling operation of the switches so that there is limited loss as discussed above." Ex. 1001, 13:23-25.

According to Adest, Ledenev does not describe distinct structures or operations of these three features, and Ledenev appears to disclose performing the function of power conversion by controlling only one set of switches in the power converter, i.e., T1-T4/T21-T24 in Figs 5a and 5b. (Ex. 1001, 10:11-42.) Paper 49, 15–16.

Professor Herniter testifies that it is unclear whether the aspect of not changing the form of power into heat is an aspect or result of substantially power isomorphic photovoltaic DC-DC power conversion itself or whether it is some additional feature provided by the switchmode operation and topology of the DC-DC converter. Ex. 1004 ¶ 31. Adest thus urges indefiniteness in this term in that the specification is unclear as to whether these three features are the same thing or three distinct things, and if they are distinct, what are the distinct structures and distinct operations of each that distinguish the features. *Id.*, ¶ 32. Professor Herniter concudes that this ambiguity as to the only structure or structures identified as providing "substantially power isomorphic . . . conversion," further results in the claimed "substantially power isomorphic" converter and circuitry to be indefinite. *Id.,* ¶¶ 32-35.

Ledenev in opposition notes that the specification indicates that isomorphic conversion results from operation and from topology. Paper 78, 14, citing Ex. 2001, 13:11-14. Professor Seymour testifies that synchronous switching providing low losses accomplishes this. Ex. 2028, ¶ 39. He concludes that a person having ordinary skill in the art could have readily used such topology and operational protocol to achieve isomorphic power conversion. *Id.,* ¶¶ 37-41.

We find Professor Seymour's testimony to be credible and carry more weight than Professor Herniter's. Professor Seymour points to where the specification provides several examples as to how the efficiencies discussed are accomplished. More particularly, and *inter alia*:

- "A portion of the efficiency gain is achieved by using switchmode operation of transistor switches, however, the topology is far more significant in this regard." Ex. 2001, 13:11-14.

- "This [efficiency] can be provided by utilizing substantially power isomorphic photovoltaic converter functionality and a substantially power isomorphic photovoltaic impedance converter and by controlling operation of the switches so that there is limited loss as discussed above." Ex. 2001, 13:20-25.

- "In the case of the impedance being changed such that the uotput voltage is lower than the input voltage (buck), T3 can be forced to be in a continuous conduction state and T4 in a non-conducting state with T1 and T2 operated in a switchmode duty cycle state. This duty cycle of operation can be synchronous in that the transistor T2 may be switched synchronously with T1 (with inverted duty cycle). T2 may be a low $R_{DS(ON)}$ FET having much lower losses than a diode in this location. By such synchronous operation this circuit can have extremely high efficiency as mentioned more generally below." Ex. 2001, col. 11, l. 28-38.

- "One aspect that contributes to such efficiency is the fact that minimal amounts of energy are stored during the conversion process." Ex. 2001, 13:29-31.

It appears to us that these passages in Ledenev explain at least one method of achieving the high efficiency required to achieve the claimed "isomorphic"

qualities. This description, viewed through the lens of one of ordinary skill in the art, appears to provide sufficient and reasonable means to understand that the isomorphic conversion as a whole can be the result of a plurality of these factors. We therefore are not persuaded by Ledenev's contention in this regard.

"multimodal"

Adest asserts that independent claims 1, 17, and 20 each recite one of the following limitations that lacks sufficient written description or otherwise is indefinite: "multimodal functionality" (claims 1 and 20) and "multimodal converter functionality" (claim 17). *See* Ex. 1001, 22:57, 26:7, 26:54-55. Dependent claims 2, 3, 5, 6, 18, and 21 additionally recite one of these limitations. Ex. 1001, 22:5, 22:11-12, 22:25-26, 22:42-43, 26:23-24, 27:45. Paper 49, 17–18.

According to Adest, Ledenev references thirty–eight different types of undefined "mode" circuitry from which "multimodal functionality" could be selected, including "all permutations and combinations" of such thirty-eight different mode circuitries. *Id.*, citing Ex. 1001, 24:67.

Adest observes that this at least results in approximately 275 billion different possibilities of "multimodal functionality" which are also not described. Paper 49, 18, citing Ex. 1004, ¶ 38.

In response, Ledenev observes that at least two modes - increasing and decreasing impedance – e.g. "buck" and "boost" - are described. Paper 78, 15.

Indeed, Ledenev points out that Adest's own witness admitted during cross-examination that the two different modes of operation constituted multimodal.

> Q. Having had it explained as providing both a boost and a buck capability, would a person understand the red circled circuitry to be first modality photovoltaic DC-to-DC power conversion circuitry?
> A. Uh-huh, yeah. I think it was – I explained that.
>
> Q. Would a person of ordinary skill in the art in 2007 understand the portion circled in purple in figure 5B as being second modality photovoltaic DC-to-DC power conversion circuitry?
> A. I think they could have.

Ex. 2027, p. 197:3–15. *See also* Ex. 1004, ¶ 39 ("The '116 patent does include several modes of operation").

Accordingly, Adest fails to provide us sufficient persuasive evidence that one of ordinary skill in the art could not reasonably understand the scope of "multimodal" in claims 1, 17, and 20.

"all permutations and combinations of the above"

As noted above, breadth of a claim does not mean the claim is necessarily indefinite. For claims 6 and 21, Adest observes the claims make such combinations, and makes an allegation that there are many combinations and possibilities. Paper 78, 20–21. While this statement is literally true, a large number of possibilities does not necessarily by itself mean that a claim is indefinite. Professer Herniter opines that one of ordinary skill in the art would not know which modes would or could be combined. Ex. 1004 ¶ 62, citing ¶¶ 37–39. He is of the opinion that the circuitries discussed in the claims are not discussed in the specification, and it is not disclosed how one would combine these circuits into a functional circuit. *Id.*

On the other hand, Ledenev observes that claims 6 and 21 each specify only 38 distinct alternative species, and the text "all permutations and combinations" does not create any additional species. Professor Seymour testifies that a person of ordinary skill in the art could readily determine infringement of claims 6 and 21.

While there could be a large number of permutations and combinations, we are not persuaded that a person of ordinary skill in the art could not reasonably determine the scope of the claims. Professor Herniter has not demonstrated an instance to us of any doubt as to the scope or an actual example of incompatible modes.

Accordingly, we are unpersuaded by this contention concerning claims 6 and 21.

"traditional" and "improved"

Adest asserts that the terms "traditional" and "improved" in claims 15 and 16 are subjective and undefined. *Id.*, 21–22. Claims 15 and 16 are reproduced below:

> 15. An efficient solar energy power system as described in claim 14 wherein said first power capability comprises a traditional power conversion capability and wherein said second power capability comprises an improved power conversion capability.
>
> 16. An efficient solar energy power system as described in claim 15 and further comprising a shunt switch operation disable element to bypass said improved power conversion capability.

Ex. 1001, 25:54–62.

Professor Herniter testifies, convincingly, that the term "traditional"

could be any type of power conversion ever published in the literature. He further testifies that guidance on interpreting the term is minimal, providing onl;y one example of an inverter. He additionally testifies that the ’116 patent fails to provide any guidance as to what qualifies as the claim 15 feature of a “traditional power conversion capability” or an “improved power conversion capability.” He is of the opinion that the vagueness of the terms “traditional” and “improved,” and the lack of any clarifying disclosure in the ’116 patent, render one of ordinary skill in the art unable to determine the scope of claim 15. Ex. 1004, ¶¶ 63–66.

Ledenev asserts that these terms are definite in that they have their common sense meaning – known aand providing better performance. Paper 78, 19. Professor Seymour testifies that as the ’116 Patent juxtaposes the terms “traditional” and “improved” against one another, it provides context that points directly to their opposing (and common sense) meanings – known and not known (and providing better performance), respectively. Ex. 2028, ¶ 28.
He also points to additional text from the ’116 Patent describing where the inventive systems can achieve efficiencies in conversion that are extraordinarily high compared to traditional systems. According to Dr. Seymour, this suggests that traditional capabilities are known capabilities. It is therefore Dr. Seymour’s view that the specification would have guided a person of ordinary skill in the art, in 2007,
to a reasonably certain understanding that the inventor considers certain technical capabilities e.g., isomorphic power conversion – as improved. He asserts that such

a skilled person would have been able to identify the scope of claims 15 and 16 with reasonable certainty. *Id*, ¶ 56.

We find this testimony of Dr. Seymour to be of very little persuasive value. We instead credit Professor Herniter's testimony that the terms are subjective and vague. The term "traditional" is given no clear metes and bounds and there is no boundary on what constitutes "improved."

We are therefore persuaded that Adest has shown that claims 15 and 16 are indefinite, as one of ordinary skill in the art cannot reasonably ascertain their scope.

B. Written Description

1. Legal Principles

"To satisfy [the written description] requirement, the specification must describe the invention in sufficient detail so 'that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought.'" *In re Alonso,* 545 F.3d 1015, 1019 (Fed. Cir. 2008), citing *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997). We thus consider what the specification reasonably would have conveyed to one of ordinary skill in the art, as well as the predictability of the art, in evaluating whether the specification provides sufficient written description for the claimed invention. *Bilstad v. Wakalopulos*, 386 F.3d 1116, 1125 (Fed. Cir. 2004); *Noelle v. Lederman*, 355 F.3d 1343, 1350 (Fed. Cir. 2004). "Such description need not recite the claimed invention in haec verba but must do more than merely disclose that which would render the claimed invention obvious." *ICU Medical, Inc. v. Alaris Medical*

Systems, Inc., 558 F.3d 1368, 1377 (Fed. Cir. 2009). A "mere wish or plan" for obtaining the claimed invention does not satisfy the written description requirement. *Regents of the Univ. of Cal. v. Eli Lilly & Co*., 119 F.3d 1559, 1566 (Fed. Cir. 1997).

In interference proceedings the language of each claim is given its broadest reasonable interpretation as read in light of the specification as it would be interpreted by one of ordinary skill in the art. *See In re Sneed*, 710 F.2d 1544, 1548 (Fed. Cir. 1983) (citations omitted).

Adest asserts that the above claim limitations lack sufficient written description. More specifically, it is Adest's position that if the claim were to cover a configuration having a single "DC photovoltaic output" and more than one "DC-DC power converter," then the claim necessarily covers a configuration where two (or more) DC-to-DC power converters are connected to the same DC photovoltaic output. Paper 49, 11-12, *citing* Ex. 1004, ¶¶ 21. However, Adest urges that Ledenev fails to disclose such a configuration. Consequently, it is Adest's position that the Ledenev's claims reciting them should be rendered unpatentable for lack of sufficient written description. Paper 49, 11-12.

Dr. Herniter testifies that "if one were to assume that the singular interpretation was intended, the claim would lack written description support because there is no disclosure of multiple DC-DC power converters accepting power from a single power source as would be required by the claim according to this assumption." Ex. 1004, ¶ 23.

Ledenev responds that the claims as originally filed contained such language and as such can be support for themselves. Paper 78, 10. More specifically, Ledenev contends that claims 1, 11 and 18, original claims in the PCT application, recited a system having "at least one solar energy source" and "at least one…DC-DC power converter." *Id.*, citing Ex. 2029, pp. 36-37 and 39.

As our reviewing court has stated, the question is a bit more complex than "is it there or not?":

> Furthermore, while it is true that original claims are part of the original specification, *In re Gardner*, 480 F.2d 879, 879 (CCPA 1973), that truism fails to address the question whether original claim language necessarily discloses the subject matter that it claims. Ariad believes so, arguing that original claims identify whatever they state, *e.g.*, a perpetual motion machine, leaving only the question whether the applicant has enabled anyone to make and use such an invention. Oral Argument 37:26–38:00. We disagree that this is always the case. Although many original claims will satisfy the written description requirement, certain claims may not. For example, a generic claim may define the boundaries of a vast genus of chemical compounds, and yet the question may still remain whether the specification, including original claim language, demonstrates that the applicant has invented species sufficient to support a claim to a genus. The problem is especially acute with genus claims that use functional language to define the boundaries of a claimed genus. In such a case, the functional claim may simply claim a desired result, and may do so without describing species that achieve that result. But the specification must demonstrate that the applicant has made a generic invention that achieves the claimed result and do so by showing that the applicant has invented species sufficient to support a claim to the functionally-defined genus

Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co., 598 F.3d 1336, 1349 (Fed. Cir. 2010).

Ledenev asserts that one of ordinary skill in the art would have known of multiple converters for a single energy source. Paper 78, 10, , citing Ex. 2030, Fig. 7. According to Professor Seymour, such a person could have readily applied such known technology to a photovoltaic system to configure two or more converters for each panel. Ex. 2028, ¶ 26.

Ledenev US 8,004,116 B2 (Ex. 2001) was application serial number 12/955,704, a continuation of 12/682,889, filed as a PCT application PCT/US2008/057105. Ex. 2001 [63]. The PCT application is provided to us as Exhibit 2029. A careful reading of the Exhibit reveals the original text of claims 1 and 11, as filed. They are reproduced below:

> 1. A vacillatory conversion mode solar energy power system comprising:
> - at least one solar energy source having a DC photovoltaic output;
> - a DC input that accepts power from said DC photovoltaic output;
> - first modality photovoltaic DC-DC power conversion circuitry responsive to said DC input;
> - second modality photovoltaic DC-DC power conversion circuitry responsive to said DC input;
> - alternative mode photovoltaic power converter functionality control circuitry configured to alternatively switch at at least some times between said first modality photovoltaic DC-DC power conversion circuitry and said second modality photovoltaic DC-DC power conversion circuitry;
> - a photovoltaic DC-DC power converter responsive to said alternative mode photovoltaic power converter functionality control circuitry;

- a photovoltaic DC power output connected to said photovoltaic DCDC power converter;
- a photovoltaic DC-AC inverter responsive to said photovoltaic DC power output; and
- a photovoltaic AC power output responsive to said photovoltaic DC-AC inverter.

Ex. 2029, 33.

11. An efficient solar energy power system comprising:

- at least one solar energy source having a DC photovoltaic output;
- a DC input that accepts power from said DC photovoltaic output;
- at least one substantially power isomorphic photovoltaic DC-DC power converter responsive to said DC input;
- substantially power isomorphic photovoltaic converter functionality control circuitry to which at least one of said substantially isomorphic DC-DC power converters are responsive;
- a photovoltaic DC power output connected to said photovoltaic DC-DC power converter;
- a photovoltaic DC-AC inverter responsive to said photovoltaic DC power output; and
- a photovoltaic AC power output responsive to said photovoltaic DC-AC inverter.

Ex. 2029, 36–37.

The first issue, squarely joined, is whether "first modality photovoltaic DC-DC power conversion circuitry responsive to said DC input; second modality photovoltaic DC-DC power conversion circuitry responsive to said DC input" (claim 1) and "at least one substantially power isomorphic photovoltaic DC-DC

power converter responsive to said DC input" (claim 11) supports the "at least one" DC-DC converter language in the '116 claims.

In this instance, utilizing a plurality of DC-DC converters was contemplated in the claims of the PCT application. Accordingly, we find that the language "at least one" has sufficient written description support.

The second issue is whether "a photovoltaic DC-AC inverter responsive to said photovoltaic DC power output" in both claims 1 and 11 above in the PCT application is sufficient to how that Ledenev had possession of the later claimed "at least one photovoltaic DC-AC inverter responsive to said photovoltaic DC power output" as recited in the claims of the '116 application. This question is much more difficult to answer. The original claims do not have language supporting feeding multiple DC-AC inverters from the DC power output.

Ledenev points out original claims 1 and 11 describe a system "comprising" an inverter. Paper 78, 10-11. Ledenev urges that the term "comprising" is used in conjunction with "a" or "an" article, such claim is properly interpreted as covering one or more of such articles absent a clear intent to limit only coverage to only one such article. *Id.*, citing *Baldwin Graphic Systems, Inc., v. Siebert, Inc*., 512 F.3d 1338, 1342-1343 (Fed. Cir. 2008). The problem with this position is that we are not concerned with infringement or indefiniteness in this analysis, but written descriptive support. It is of no moment that one of ordinary skill in the art could have made a multi inverter setup, the question is whether one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought.

We cannot conclude that the prior PCT application describes the claimed invention, including an embodiment with a plurality of inverters. As such, claims 1, 17, and 20 lack written descriptive support. As all the remaining claims depend directly or indirectly from those three claims, they too lack written descriptive support.

We therefore GRANT Adest Motion 1.

VI. Adest Motion 2 – for Benefit

As we have granted Adest Motion 1, and Junior Party Ledenev has no remaining claims, we dismiss Adest Motion 2. (Paper 48).

VII. Ledenev Motion 4 – Designating Claims as Not Corresponding to the Count

Ledenev Motion 4 (Paper 35) seeks to have claims 4, 15, and 16 designated as not corresponding to the count. However, as Adest Motion 1 has been granted, and these claims are unpatentable, we dismiss Ledenev Motion 4.

VII. Order

It is hereby ORDERED that:

Ledenev Motion 7 is DENIED.
Adest Motion 1 is GRANTED.
Adest Motion 2 is DISMISSED.
Ledenev Motion 4 is DISMISSED.

FURTHER ORDERED that judgment against Ledenev will be entered in a separate paper to follow.

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