

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COLEMAN CABLE, LLC, JIAWEI TECHNOLOGY (HK) LTD., JIAWEI
TECHNOLOGY (USA) LTD., SHENZHEN JIAWEI PHOTOVOLTAIC
LIGHTING CO, LTD., ATICO INTERNATIONAL (ASIA) LTD., ATICO
INTERNATIONAL USA, INC., SMART SOLAR, INC., and TEST RITE
PRODUCTS CORP.,
Petitioner,

v.

SIMON NICHOLAS RICHMOND,
Patent Owner.

Case IPR2014-00935
Patent 8,089,370 B2

Before WILLIAM V. SAINDON, JUSTIN T. ARBES, and
BARRY L. GROSSMAN, *Administrative Patent Judges.*

GROSSMAN, *Administrative Patent Judge.*

DECISION

Final Written Decision
35 U.S.C. § 318(a); 37 C.F.R. § 42.73

I. INTRODUCTION

We have jurisdiction under 35 U.S.C. § 6(c). This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. With respect to the grounds asserted in this trial, we have considered the papers submitted by the parties and the evidence cited therein. For the reasons discussed below, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 1–7, 9, 10, 14, 17–20, 23, 28, 43, 45 and 48–50 of U.S. Patent No. 8,089,370 B2 (Ex. 1001, “the ’370 patent”) is unpatentable. In addition, we deny-in-part and dismiss-in-part both Petitioner’s and Patent Owner’s Motions to Exclude Evidence, and we grant Petitioner’s Motion to Seal.

A. *Procedural History*

Coleman Cable, LLC, Jiawei Technology (HK) Ltd., Jiawei Technology (USA) Ltd., Shenzhen Jiawei Photovoltaic Lighting Co, Ltd., Atico International (Asia) Ltd., Atico International USA, Inc., Smart Solar, Inc., and Test Rite Products Corp. (collectively “Petitioner”) filed a Corrected Petition to institute an *inter partes* review (Paper 10, “Pet.”) of claims 1–7, 9, 10, 14, 17–20, 23, 28, 43, 45 and 48–50 of the ’370 patent. Pet. 1. Petitioner included a declaration of Peter W. Shackle, Ph.D. (Ex. 1002). We instituted an *inter partes* review of all the challenged claims, claims 1–7, 9, 10, 14, 17–20, 23, 28, 43, 45 and 48–50, on December 22, 2014. Paper 19 (“Dec. on Inst.”). Patent Owner then filed its Response to Petitioner’s Petition (Paper 29, “PO Resp.”), to which Petitioner filed its Reply (Paper 44, “Pet. Reply”). An oral hearing was held on September 21, 2015. Paper 64 (“Tr.”).

Patent Owner alleged that Petitioner failed to list all real parties in interest, and we authorized the parties to brief the issue. Paper 32 (Motion to Terminate); Paper 38 (Opposition); Paper 42 (Reply). We denied the Motion to Terminate.

Paper 52.

There are several outstanding motions decided herein. Patent Owner filed a Motion to Exclude Evidence. Paper 50 (“PO Mot. Excl.”); *see also* Paper 57 (Petitioner’s Opposition, “Pet. Opp. to PO Mot. Excl.”); Paper 60 (Patent Owner’s Reply, “PO Reply in support of PO Mot. Excl.”). Likewise, Petitioner filed a Motion to Exclude Evidence. Paper 49 (“Pet Mot. Excl.”); *see also* Paper 54 (Patent Owner’s Opposition, “PO Opp. to Pet. Mot. Excl.”); Paper 59 (Petitioner’s Reply, “Pet. Reply in support of Pet. Mot. Excl.”). Lastly, Petitioner filed a Motion to Seal. Paper 36 (“Pet. Mot. Seal”). Patent Owner did not file an opposition.

B. Related Proceedings

Petitioner states that Patent Owner has filed a number of lawsuits alleging infringement of the ’370 patent. Pet. 3–4. Petitioner also filed three petitions for *inter partes* review of patents, owned by the same Patent Owner as named in this Petition, involving similar technology to that disclosed in the ’370 patent. These three *inter partes* reviews are IPR2014-00936 (instituted); IPR2014-00937 (denied); and IPR2014-00938 (instituted).

C. The ’370 Patent

The ’370 patent is titled “Illuminated Wind Indicator.” Ex. 1001, 1. The disclosed illuminated wind indicator is a modified wind chime having a solar powered, rechargeable light emitting pendulum. In this manner, power can be accumulated during the day and used to provide illumination at night. *Id.* at col. 5, ll. 11–16.

As shown in Figure 1 of the ’370 patent, reproduced below, wind indicator 10 includes light device 12 and chime portion 14, light device 12 and chime portion 14 being suspended on support 16 provided with spike 18. *Id.* at col. 5, ll.

22–26.

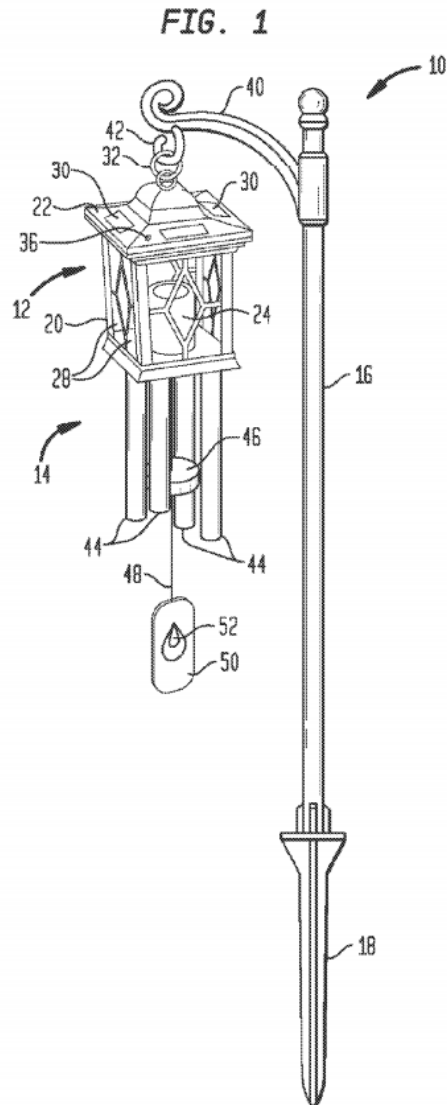


Fig. 1 from the '370 patent
is a perspective view of wind indicator 10.

As shown generally in Figure 1, light device 12 includes housing 20, lid 22, and light source 24. *Id.* at col. 5, ll. 27–31. Solar panels 30 convert solar energy to electrical power. *Id.* at col. 5, ll. 38–39. Chime portion 14 includes chime members 44 and a pendulum assembly suspended from housing portion 20. *Id.* at col. 5, ll. 57–60. In the example shown in Figure 1, the pendulum assembly includes striker disc 46 suspended using electrical wires 48, which pass from light

device 12 through striker disc 46 to pendulum 50. *Id.* at col. 5. ll. 60–64.
Electrical wires 48 may be electrically connected to second light emitting element 52 disposed inside pendulum 50. *Id.* at col. 5, l. 65–col. 6, l. 1.

D. Illustrative Claim

Among the challenged claims, claims 1, 5, 17, 18, 19, 28, 43 and 45 are independent claims. Claim 1 is directed to a “solar lamp;” claim 5 is directed to an “illuminated wind indicator;” claim 17 is directed to a “solar light module for illuminating a wind chime;” claim 18 is directed to a “lighting apparatus;” and claims 19, 28, 43 and 45 are directed to an “illuminated wind indicator.” Claim 1 is illustrative of the claimed invention and is reproduced below.

1. A solar lamp comprising:
 - a riser portion;
 - a connecting frame connected to said riser portion;
 - at least one light source, wherein said at least one light source emits light directed above at least part of said riser portion;
 - an at least partially light transmissive lens extending to cover at least part of said at least one light source and wherein light emitted from said at least one light source causes at least part of said lens to illuminate;
 - a surround frame attached to said lamp proximate to the intersection of said connecting frame and said riser portion such that some of said light passes through said lens to illuminate at least part of said surround frame from below at least part of said surround frame;
 - electrical connections for at least one rechargeable power source, wherein said riser portion positions said connections above a ground surface;
 - an activation circuit to provide power to said at least one light source from said at least one rechargeable power source only at low light levels; and
 - at least one photovoltaic panel, wherein said at least one photovoltaic panel is electrically connected to said at least one light source via said at least one rechargeable power source,

converting solar energy into electrical energy, storing said electrical energy and providing said electrical energy to said at least one light source.

E. References Relied Upon

Petitioner relies upon the following prior art references:

Reference	Date	Exhibit Number
Norton, U.S. 2006/0139912 A1	Filed June 11, 2004 Pub. June 29, 2006	Ex. 1011
Kube, U.S. 2005/0279403 A1	Filed June 16, 2004 Pub. Dec. 22, 2005	Ex. 1012
Ouyang (translation), CN 2145314Y	Pub. Nov. 3, 1993	Ex. 1014
Kao, U.S. 2005/0003120 A1	Filed Apr. 27, 2004 Pub. Jan. 6, 2005	Ex. 1016
Marchese U.S. Pat. No. 4,072,855	Issued Feb. 7, 1978	Ex. 1017
Chen U.S. Pat. No. D469,909 S	Issued Feb. 4, 2003	Ex. 1018
Kuelbs U.S. Pat. No. 6,830,009 B1	Issued Dec. 14, 2004	Ex. 1019
Chliwnyj U.S. Pat. No. 5,924,784	Issued July 20, 1999	Ex. 1020

Petitioner also relies on the declaration testimony of Dr. Shackle. Exs. 1002, 1073.

F. The Instituted Grounds

The following grounds of unpatentability were instituted for trial:

Claim(s) Challenged	Statutory Basis under 35 U.S.C.	References
1 and 48	§ 102(e) and § 103	Norton
2	§ 103	Norton and Kao
3	§ 103	Norton and Marchese
4, 49, and 50	§ 103	Norton and Chen
5, 6, 7, 9, 10, 17, 18, 19, 20 and 23	§ 103	Kube and Ouyang
28, 43, and 45	§ 103	Kube, Ouyang, and Kuelbs
14	§ 103	Kube, Ouyang, and Chliwnyj

II. MOTIONS

A. Petitioner's Motion to Seal

Petitioner moves to seal Exhibits 1027 and 1040, portions of Exhibits 1030, 1051–1053, and 1055, and portions of its Opposition to Patent Owner's Motion to Terminate, which are asserted to include confidential information. Pet. Mot. Seal 2. Petitioner submitted non-confidential versions of Exhibits 1030, 1051–1053, and 1055 that have been redacted to remove the confidential information. *Id.* Petitioner also requests entry of the Default Protective Order. *Id.* at 5.

Patent Owner did not file an opposition to the Motion to Seal.

Under 35 U.S.C. § 316(a)(1), the default rule is that all papers filed in an *inter partes* review are open and available for access by the public; and a party may file a concurrent motion to seal and the information at issue is sealed pending

the outcome of the motion. It is, however, only “confidential information” that is protected from disclosure. 35 U.S.C. § 316(a)(7).

The standard for granting a motion to seal is “for good cause.” 37 C.F.R. § 42.54. Petitioner, as the moving party, has the burden of proof in showing entitlement to the requested relief. 37 C.F.R. § 42.20(c).

The Exhibits generally relate to an internal corporate resolution, listings of financial account numbers, and invoices for attorney fees. *See* Pet. Mot. Seal 3–4. Counsel for Petitioner asserts that, to their knowledge, the documents sought to be sealed have not been published or otherwise made public. *Id.* at 4–5.

Exhibit 1027 is a Southwire Holding Company corporate resolution, which Petitioner characterizes as an “internal document.” *Id.* at 3.

Exhibit 1030 includes payment records to Dentons Canada LLP and Dentons US LLP and includes payment amount information.

Exhibit 1040 is asserted to be a “confidential” internal announcement regarding an internal “Fast Forward” program.

Exhibit 1051 includes copies of invoices to Coleman Cable, Inc. from Dentons US LLP for payments for this *inter partes* review proceeding, as well as related e-mails, and includes payment amounts and financial account number information.

Exhibit 1052, in which financial account number information has been redacted, includes wire transfer records from Coleman Cable to Dentons US LLP including payment amount information.

Exhibit 1053, in which financial account number information has been redacted, includes a copy of a check and a related letter regarding payments from Coleman Cable, LLC for this *inter partes* review proceeding and includes payment amount information.

Exhibit 1055 refers to the financial, payment, and other information in the documents discussed above.

Petitioner asserts that the financial, payment, and other information in the documents sought to be sealed is “confidential and highly sensitive commercial information.” *Id.* Petitioner also asserts that “[d]isclosure of the above information could put Coleman and Southwire at a commercial disadvantage, for instance in subsequent negotiations with other suppliers.” *Id.* at 4.

The redacted versions of these documents, upon which we relied in our denial of Patent Owner’s Motion to Terminate (Paper 52), sufficiently disclose the basis for our decision, so there is little public interest in making the non-redacted versions publicly available. Accordingly, Petitioner has shown good cause for sealing Exhibits 1027 and 1040, and portions of Exhibits 1030, 1051–1053, and 1055. We do not seal Petitioner’s Opposition to Patent Owner’s Motion to Terminate (Paper 38) because it was filed publicly, which we deem to be a withdrawal of the Motion as to this paper.

Accordingly, we grant Petitioner’s Motion to Seal.

The parties are reminded that confidential information that is subject to a protective order ordinarily becomes public 45 days after final judgment in a trial. *Office Patent Trial Practice Guide*, 77 Fed. Reg. at 48,761. After final judgment in a trial, a party may file a motion to expunge confidential information from the record prior to the information becoming public. *See* 37 C.F.R. § 42.56.

B. Patent Owner’s Motion to Exclude Evidence

Patent Owner moves to “exclude inadmissible evidence filed with Petitioner’s Reply.” PO Mot. Excl. 1. Patent Owner argues that (i) certain exhibits should be struck because they are belated, (ii) other exhibits violate the Federal Rules of Evidence, and (iii) portions of the cross-examination of its declarant,

Alfred Ducharme, Ph.D., should be excluded because the questions were allegedly misleading, argumentative, ambiguous, and/or compound.

Patent Owner, as the moving party, has the burden of proof in showing entitlement to the requested relief. 37 C.F.R. § 42.20(c).

1. Reply Exhibits

Patent Owner first argues that Exhibits 1063–72, 1073 (¶¶ 26, 27, 35–38, 44–58, 60, and 74), and 1075–83 (the “Reply Exhibits”) “are belated” (*id.* at 2) and should be excluded “for a failure to comply with 37 C.F.R. § 42.23(b) (‘A reply may only respond to arguments raised in the corresponding opposition or patent owner response.’)” (*id.* at 3). According to Patent Owner, these exhibits should be excluded because they are “exhibits that *could reasonably have been*, but were not, included in an earlier filing.” *Id.* at 2 (emphasis added). This is not the standard that determines whether information in the Reply is responsive to arguments in Patent Owner’s Response. Patent Owner does not address the substance of why these documents allegedly are not responsive to the arguments in Patent Owner’s Response. The fact that “various internet profiles” (*id.* at 3) and additional information about “Dr. Shackle’s experience” (*id.*) *existed* at the time the Petition was filed, and thus theoretically *could have been* filed earlier, does not establish that they are not responsive to arguments raised in Patent Owner’s Response.

Dr. Shackle testifies that his Second Declaration (Ex. 1073) “addresses issues raised by Dr. Ducharme, who I understand is patent owner’s expert, in his declaration and, where appropriate, statements made by Dr. Ducharme during his deposition.” Ex. 1073 ¶ 6. Patent Owner’s Reply also suggests that the Reply Exhibits are merely evidence responding to the continuing dispute about the merits of the case discussed in Patent Owner’s Response. *See, e.g.*, PO Reply in support of PO Mot. Excl. 3–4 (arguing the merits of Petitioner’s assertion of obviousness

of the wind chime claims based on the Kube and Ouyang references).

We have reviewed the arguments in Petitioner’s Reply and Petitioner’s citations therein to the Reply Exhibits and are persuaded that the Reply Exhibits are responsive to Patent Owner’s arguments and evidence in Patent Owner’s Response. Accordingly, we deny Patent Owner’s Motion to Exclude the Reply Exhibits.

2. Federal Rules of Evidence

Patent Owner seeks to exclude a number of exhibits because they allegedly do not comply with Federal Rules of Evidence (“FRE”) 401 (relevance), 403 (prejudice, confusion, delay, cumulativeness), 602 (personal knowledge), and 801 and 802 (hearsay). PO Mot. Excl. 5–6.

a. Personal Knowledge and Hearsay

Patent Owner asserts that “Exhibits 1064, 1070, 1072, 1073 (¶¶ 26, 27), and 1076–83 violate FRE 602, 801, and 802, and thus, should be excluded from further consideration.” *Id.* at 5.

Patent Owner seeks to exclude paragraphs 26 and 27 of Exhibit 1073 (Second Declaration of Dr. Shackle) because, according to Patent Owner, “they include hearsay statements and Dr. Shackle offers factual observations without laying a proper foundation or otherwise demonstrating personal knowledge of the recited facts.” in violation of Federal Rules of Evidence 602, 702, 703, 801, and 802. *Id.* at 4. Patent Owner also argues that “Exhibits 1069–71 and 1076–83,”¹ which are profiles obtained from websites such as LinkedIn and are offered to show the educational background of various inventors, are hearsay and thus should

¹ Patent Owner’s reference to Exhibit 1069 appears to be an error. Exhibit 1069 is not referred to in paragraphs 26 and 27 of Exhibit 1073, and it is not a “profile,” as characterized by Patent Owner. Exhibit 1069 relates to “Hybrid Axial Flux Machines.”

be excluded. *Id.* Additionally, Patent Owner asserts we should exclude Exhibit 1064 because it contains hearsay. *Id.* at 5.

Because we do not rely on Exhibits 1064, 1070, 1071, 1073 (¶¶ 26, 27), and 1076–1083, we dismiss this aspect of the motion as moot.

b. Relevance and Prejudice

Patent Owner asserts that Exhibits 1063–1068, 1072, 1073 (¶¶ 44–58, 60, and 74), and 1075 “lack any probative value in violation of FRE 401 and are *unduly* prejudicial to Patent Owner in violation of FRE 403.” PO Mot. Excl. 6.

As characterized by Patent Owner, Exhibits 1063, 1065–67, and 1072 relate to Petitioner’s argument and construction of the term “surround frame” in the challenged claims and “whether the prior art, namely the reference Norton, teaches a surround frame.” *Id.* Exhibits 1066 and 1068 (dictionary definitions) and Exhibit 1067 (list of synonyms for the term “surround”) also are relevant to the issues in this case. Patent Owner objects to Dr. Shackle’s Second Declaration (Ex. 1073), paragraphs 44–58, 60, and 74, because it relies on Exhibits 1063–68 and 1072.

Exhibit 1064 (website document concerning wind chimes) and Exhibit 1075 (Lighting Handbook) also are relevant to the subject matter of this case.

According to Patent Owner, “[a]ny probative value of Exhibits 1063, 1065, and 1072 is strongly outweighed by the unfair prejudice to Patent Owner resulting in confusing of the issues, misleading the Board, undue delay, and wasting time, in violation of FRE 403.” *Id.* We disagree.

The evidence at issue in Patent Owner’s Motion regarding the construction of the term “surround frame” and lighting technology clearly is relevant to the issues in this case. It is well-settled that judges are free to consult dictionaries at any time in order to better understand the underlying technology as long as “the

dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1585 n.6 (Fed. Cir. 1996); *see generally infra* Section III.A.

A motion to exclude is not a vehicle for addressing the weight to be given evidence. In considering whether evidence is probative, confusing, or misleading, we consider the forum in which the motion is presented. “The Board is comprised of a tribunal of judges ‘of competent legal knowledge and scientific ability.’” 35 U.S.C. § 6(a). There is no jury to impress, convince, or confuse in our proceedings. Moreover, we are capable of assigning the weight to be given evidence, including assigning ‘no weight.’” *FLIR Sys., Inc. v. Leak Surveys, Inc.*, Case IPR2014-00411, slip op. at 5 (PTAB Sept. 3, 2015) (Paper 113). Similar to a district court in a bench trial, the Board, sitting as a non-jury tribunal with administrative expertise, is well-positioned to determine and assign appropriate weight to evidence presented. *See, e.g., Donnelly Garment Co. v. NLRB*, 123 F.2d 215, 224 (8th Cir. 1941) (“One who is capable of ruling accurately upon the admissibility of evidence is equally capable of sifting it accurately after it has been received . . .”).

Based on the analysis above, we deny Patent Owner’s Motion to Exclude as to Exhibits 1063–1068, 1072, 1073 (¶¶ 44–58, 60, and 74), and 1075.

3. *Cross-Examination Testimony*

Patent Owner argues that four excerpts of the cross-examination, deposition testimony of its declarant, Dr. Ducharme, in Exhibits 1061 and 1062, should be excluded. PO Mot. Excl. 9–14. For each of the four excerpts, Patent Owner asserts that Dr. Ducharme’s testimony should not be treated as standing for the notions upon which Petitioner argues, and that it is inadmissible. *See, e.g., id.* at 10 (“In addition to the cited excerpts not offering support for Petitioner’s

mischaracterization, the testimony . . . is inadmissible because the question was ambiguous and misleading,” and the line of questioning “has low probative value and is confusing and results in undue prejudice . . .”). As discussed above, we will make our own judgments as to what extent, if any, Dr. Ducharme’s testimony supports the parties’ respective positions and whether the testimony is competent, material, and convincing, or whether testimony is based on an unclear, ambiguous question, or prejudicial. Accordingly, we deny Patent Owner’s motion to exclude the four excerpts from Dr. Ducharme’s deposition testimony.

In summary, we deny-in-part and dismiss-in-part Patent Owner’s Motion to Exclude.

C. Petitioner’s Motion to Exclude Evidence

Petitioner, as the moving party, has the burden of proof in showing entitlement to the requested relief. 37 C.F.R. § 42.20(c).

Petitioner first moves to exclude Exhibits 2054, 2062, 2064, 2066, and 2076 in their entirety, portions of Papers 29 and 32, which are Patent Owner’s Response and Patent Owner’s Motion to Terminate, respectively, and evidence submitted with Patent Owner’s observations. Pet Mot. Excl. 2.

1. Exhibits 2054, 2062, 2064, 2066, and 2076

According to Petitioner, Exhibits 2054, 2062, 2064, 2066, and 2076 should be excluded because they are “inadmissible hearsay.” *Id.* at 2. Petitioner also asserts that Patent Owner’s Motion to Terminate, Paper 32, pages 8–9, should be excluded because it is argument that relies on Exhibits 2054, 2062, 2064, 2066, and 2076. *Id.* at 3.

Patent Owner asserts that this matter is moot because we denied the Motion to Terminate. PO Opp. Pet. Mot. Excl. 2.

Petitioner argues that Patent Owner possesses a right to appeal denial of the Motion to Terminate, and therefore, the issue is not moot. Pet. Reply in support of Pet. Mot. Excl. 1.

We denied Patent Owner's Motion to Terminate on August 21, 2015 (Paper 52). Accordingly, we dismiss Petitioner's Motion as to these Exhibits and portions of Paper 32 as moot.

2. *Testimony Regarding "Retrospective Review"*

Petitioner moves to exclude under FRE 402 and 403 as confusing, misleading, and irrelevant selected portions of: (1) Dr. Shackle's deposition testimony in Ex. 2024;² (2) Patent Owner's Response; and (3) Dr. Ducharme's declaration testimony in Ex. 2022 ¶ 35. Pet. Mot. Excl. 4. Petitioner argues that this evidence represents "only snippets" of the testimony regarding Patent Owner's argument that Dr. Shackle used "hindsight" and a "retrospective review" in forming his opinions. *Id.*

We deny Petitioner's Motion to Exclude this evidence. This panel acts as both the gatekeeper of evidence and as the weigher of evidence. We base our decision on the totality of the evidence, including the full deposition transcripts filed in this proceeding. Rather than excluding evidence that is allegedly confusing, misleading, and/or irrelevant, we will give it appropriate weight in our analysis, including, if appropriate, no weight.³

² Deposition Testimony of Dr. Peter W. Shackle, Vol. 2, pages 196–361.

³ "The trial judge is in the best position to weigh considerations such as the closeness of the case, the tactics of counsel, the conduct of the parties, and any other factors that may contribute to a fair allocation of the burdens of litigation as between winner and loser." *S.C. Johnson & Son, Inc. v. Carter-Wallace, Inc.*, 781 F.2d 198, 201 (Fed. Cir. 1986).

*3. Dr. Shackle's Deposition Testimony
Concerning the "Unified Glare Rating" Formula*

Petitioner moves to exclude under FRE 402 and 403 as being irrelevant cross-examination testimony of Dr. Shackle concerning an equation called the "Unified Glare Rating" formula. Pet. Mot. Excl. 4–5. We deny Petitioner's Motion to Exclude this cross-examination testimony evidence.

The '370 patent does not use the word "glare." Dr. Ducharme, Patent Owner's declarant, testified that the '370 patent uses glare to illuminate the chimes. Ex. 2022 ¶ 170. Dr. Shackle testified on cross-examination that he was "not aware" of "something called a Unified Glare Rating." Ex. 2084, p. 100, ll. 6–8. Petitioner argues, *without citation of evidentiary support*, that the Unified Glare Rating "is used to assess glare caused by street lights that use 200+ watts of energy from an AC voltage source." Pet. Mot. Excl. 5. Petitioner bases its assertion that Dr. Shackle's testimony on this topic is irrelevant because "garden lights or wind chimes typically use about 1 watt of energy from a relatively small battery." *Id.* Again, Petitioner cites *no evidence* to support its position. Thus, based on the evidence before us, the evidence does not establish that Dr. Shackle's testimony on the Unified Glare Rating formula is irrelevant.

As explained above, we base our decision on the totality of the evidence, weigh the evidence Petitioner moves to exclude in the context of other evidence, and give the evidence Petitioner moves to exclude appropriate weight in our analysis, including no weight.

In summary, we deny-in-part and dismiss-in-part Petitioner's Motion to Exclude.

D. Patent Owner's Motion for Observation

Patent Owner filed a Motion for Observation (Paper 51) on the cross-examination of Dr. Shackle, which took place after Petitioner filed its Reply. Petitioner filed a Response (Paper 56). We have considered Patent Owner's observations and Petitioner's responses in rendering our decision.

III. ANALYSIS

A. Claim Construction

In an *inter partes* review, “[a] claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b); *see also* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,764, 48,766 (Aug. 14, 2012) (*Claim Construction*); *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). “[W]hen interpreting a claim, words of the claim are generally given their ordinary and accustomed meaning, unless it appears from the specification or the file history that they were used differently by the inventor.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Id.*

Only terms which are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

We determine that the term “surround frame,” used in claims 1, 4, 49, and 50, and the term “emits light,” used in claims 1, 5, 7, 9, 10, 11, 18, 19, 23, 24, and 28, require specific construction.

1. Surround Frame

Counsel for Patent Owner acknowledged that the construction of the term “surround frame” is the “controlling issue” with respect to the challenges to claims

1–4 and 48–50. Tr. 47, 1. 22–48, 1. 2. As we discuss below, the construction of this term involves consideration of the difference between two-dimensional and three-dimensional objects, and the difference between a structure that surrounds an object and one that encircles an object. Our task is made more challenging because of the minimal intrinsic evidence related to this issue.

To ascertain the scope and meaning of the claim term “surround frame,” we look to the words of the claims themselves, the specification, the prosecution history, and any relevant extrinsic evidence. *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1286 (Fed. Cir. 2015). The specification is always highly relevant to the claim construction analysis. “Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

a. The Claims

Four claims, claims 1, 4, 49 and 50, contain a specific recitation of some feature of the “surround frame.” Claims 2, 3, and 48 depend from claim 1. Thus, the claims that include directly or through dependency a “surround frame” element are claims 1–4, and 48–50. With respect to the surround frame, claim 1 recites:

a surround frame attached to said lamp proximate to the intersection of said connecting frame and said riser portion such that some of said light passes through said lens to illuminate at least part of said surround frame from below at least part of said surround frame.

Thus, claim 1 does *not* recite a specific shape, structure, orientation, or material for the “surround frame.” It merely states where the “surround frame” is attached, in relation to the lamp, connecting frame, and riser portion, and the functional result of that attachment, that some light passes through the lens “to illuminate at least part of said surround frame from below.”

Claim 4, dependent from claim 1, further recites that the lens is substantially spherical and that the “surround frame *at least partially encircles* said lens.” *See also* Ex. 1001, col. 22, ll. 1–2 (“The surround frame may partially or fully encircle the lens portion 214 . . .”).

Claim 49, dependent from claim 4, further recites a specific shape for the “surround frame,” which includes a shape “selected from the group consisting of an insect, flower, geometric shape, and astronomical shape.” *See also id.*, col. 21, l. 66–col. 22, l. 1 (“The frame may be any decorative shape such as a sun, flower, moon, insect, or geometric shape.”).

Claim 50, dependent from claim 1, also recites that the lens is substantially spherical (*see* claim 4) and further recites that the “surround frame *at least partially surrounds* said lens.” The only difference between claim 50 and claim 4 is that claim 50 states that the surround frame “surrounds” the lens, whereas claim 4 states that the surround frame “encircles” the lens. Under the patent law doctrine of claim differentiation, this would suggest that “encircles” and “surrounds” have different meanings.

We recognize that the doctrine of claim differentiation is “based on the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope.” *Karlin Tech. Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 971–72 (Fed. Cir. 1999). The doctrine is “not a hard and fast rule, but instead ‘a rule of thumb that does not trump the clear import of the specification.’” *Starhome GmbH v. AT & T Mobility LLC*, 743 F.3d 849, 858 (Fed. Cir. 2014) (quoting *Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1332 (Fed. Cir. 2009)). We conclude that claim differentiation applies in this context, primarily because the Specification supports such a reading, as explained below. Independent claim 1, which only recites a

“surround frame,” is broader than dependent claims 4 and 50, and the terms “surround” and “encircle” in claims 4 and 50 mean different things, with “surround” being the broader of the two.

Thus, based on our review of the claim language, surrounding and encircling are two different things.

b. The Specification

Turning to the Specification, an exemplary “surround frame” is shown and described in the Specification in the context of the embodiment in Figure 11, which is reproduced below.

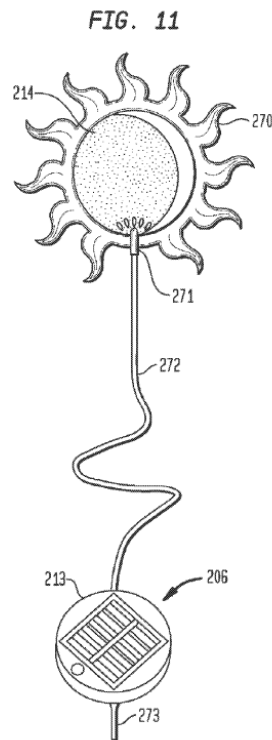


Figure 11 from the '370 patent.

The written description in the '370 patent contains more than 26 columns of text (more than 1,700 lines of text), and discloses at least twelve distinct embodiments. The description of an exemplary “surround frame,” however, is only nine lines of text in the patent:

In this embodiment a surround frame 270 *encircles* the lens portion 214. The surround frame 270 adds a decorative element but also provides some impact protection for the lens portion 214 should the fixture topple over and fall. The frame may be any decorative shape such as a sun, flower, moon, insect, or geometric shape. The surround frame *may partially or fully encircle the lens portion 214 and may surround the lens portion 214 in two or three dimensions*. When illuminated, light emanating from the lens portion 214 illuminates at least part of the frame 270.

Ex. 1001, col. 21, l. 63–col. 22, l. 4 (emphasis added). Surround frame 270, as described above in the Specification, is separate and distinct from frame 271, also shown in Figure 11. As described in the Specification, lens portion 214 is rigidly fixed on frame 271, which is connected to upper pole portion 272. *Id.* at col. 21, ll. 60–62.

The Specification mirrors the claims in that it uses “surround” and “encircle” distinctly. The Specification discloses that surround frame 270 in Figure 11 “encircles” lens portion 214, and that “[t]he surround frame [depicted in Figure 11] may partially or fully *encircle* the lens portion 214 and may *surround* the lens portion 214 in two or three dimensions.” Ex. 1001, col. 22, ll. 1–3 (emphasis added). The fact that the Specification uses the two terms in the same sentence, with an “and” between the two clauses, is an indication that the terms do not mean the same thing.

Evidence of the terms’ ordinary meanings also supports interpreting them to mean different things. Although the parties submitted some dictionary definitions of the terms that define them effectively as synonyms, other aspects of the submitted definitions indicate that there is a difference. One dictionary defines “surround” as “to enclose on all sides; encompass” or “to form an enclosure round; encircle.” Ex. 1066, 1. Another dictionary defines “encircle” as “[t]o form a circle

around; surround” or “[t]o move or go around completely; make a circuit of.” Ex. 2045, 1. Thus, “encircle” appears to imply a circular shape, whereas “surround” may be any shape. *See* Tr. 45, ll. 5–16 (Petitioner agreeing that “anything that surrounds, if [it is] in a circular shape, also encircles”).

Thus, from the Specification, we glean that surround frame 270 is an example of a “surround frame” that “encircles” a lens, i.e., has a circular shape around the lens, and that it is possible for a “surround frame” to “partially or fully encircle” a lens or “surround [a lens] in two or three dimensions.” *See id.*, col. 21, l. 63–col. 22, l. 3.

c. The Prosecution History

The prosecution history sheds little light on the construction of the term “surround frame.”

Patent claim 1 was application claim 6; patent claim 4 was application claim 9; and patent claim 50 was application claim 55. Ex. 1003, 223 (showing the Examiner’s concordance of final claims allowed and issued with original claims filed).

The “surround frame” clause in original application claim 6, as filed, is identical to the “surround frame” clause in patent claim 1.

In adding application claim 55 by amendment, the applicant stated that “[n]ew dependent claim 55 has been added and depends from allowed claim 6. New claim 55 complements amended claim 9 to further cover features of the surround frame described in paragraph [00152] of the specification relating to whether the lens is surrounded in two or three dimensions.” Ex. 1003, 160; *see also* Ex. 1001, col. 22, ll. 1–3 (“The surround frame . . . may surround the lens portion 214 in two or three dimensions.”). Thus, the phrase in patent claim 50, which recites that the surround frame at least partially *surrounds* the lens, was

intended by the applicant to describe a structure that “complements” the structure in patent claim 4, which recites that the surround frame at least partially *encircles* the lens. In other words, again, surrounding and encircling are not exactly the same thing, but the parent independent claim, claim 1, encompasses both possibilities.

The Examiner’s Reasons for Allowance do not mention the “surround frame.” The Examiner stated that “[c]laims 6-55 have been found to be novel and inventive because [the] prior art does not teach all elements of the applicant’s invention.” Ex. 1003, 206. Regarding independent application claims 6, 10, 23, 24, 33, and 50, which correspond to patent claims 1, 5, 18, 19, 28, and 45, the Examiner also stated:

The claims recite the structural significance of wherein at least one light source situated such that a portion of said pendulum assembly emits light; wherein at least part of said light emitted by said pendulum assembly is reflected by said at least one chime member causing at least part of an external surface of said at least one chime member to be illuminated such that movement of said at least one chime member relative to said pendulum assembly is visible at said ambient light levels.

Id.

d. The Parties’ Positions

Petitioner asserts that the term “surround frame” in claim 1 should be interpreted to mean “a frame disposed at least partially around the lens.” Pet. 20. Petitioner relies on the Specification and the Declaration of Dr. Shackle for support. *Id.* Dr. Shackle’s testimony largely mirrors what is in the Petition. *See* Ex. 1002 ¶ 86.

Patent Owner asserts a substantially different construction. According to Patent Owner, the broadest reasonable interpretation of “surround frame,” as used in the claims of the ’370 patent is:

An open structural peripheral border that encircles the lens while residing primarily in a plane passing through the lens, *the degree of completeness being at least 270 degrees* (like a doorway surround frame that is complete except for one side), the peripheral border being *primarily either linearly one-dimensional or two-dimensional in the plane in which it primarily resides, any degree of thickness in a third dimension being relatively small* such that the peripheral border *does not substantially conceal or cover the lens outside of plane in which the peripheral border primarily resides.*

PO Resp. 18 (citing Ex. 2022 ¶ 94) (emphasis added).

Patent Owner and its declarant, Dr. Ducharme, rely on extrinsic evidence based on the use of the phrase “surround frame” in the context of, for example, door and window frames and eyeglass frames to support their proposed construction. PO Resp. 12–13; Ex. 2022 ¶ 70–71. Dr. Ducharme also relies on incidental uses of the phrase “surround frame” in various technologies, such as a vehicle sun visor (Ex. 2022 ¶ 87), a security door (*id.* ¶ 88), and platens for linear motors operating in a plane (*id.* ¶ 89). According to Patent Owner, the use of the term “surround frame” in the other cited references demonstrates that the term has “a very well understood and ordinary meaning” of its proposed interpretation.

PO Resp. 13. We are not persuaded that is the case, however.

Notwithstanding a “reasonably comprehensive search of U.S. patents and published patent applications on the USPTO website to look for the term ‘surround frame’” by Dr. Ducharme (*id.* ¶ 81), there is *no evidence* that the term “surround frame” is a term that has a single recognized meaning to a person of ordinary skill in the technology relevant to the claimed invention of the ’370 patent, or is

otherwise considered a term of art. *See* Tr. 67, ll. 15–23 (“We don’t have anything like that in the record, Your Honor.”). Dr. Ducharme was not able to identify a single patent that used the term “surround frame” in a technology analogous to the claimed invention. Patent Owner maintains, however, that the term “surround frame” has “a uniform, well accepted and consistently used meaning to persons in the art That is our position.” *Id.* at 51, ll. 2–6.

The evidence of patents and published patent applications directed to doors and window frames, eyeglass frames, and other technologies on which Patent Owner relies, is not persuasive that the detailed construction of the term “surround frame,” advocated by Patent Owner and quoted above, is the broadest reasonable construction of that term based on the intrinsic and extrinsic evidence. The patents and published patent applications have different specifications, use the term in different contexts, and do not show that the term has a common meaning across technology areas.

Patent Owner also argues that its proposed construction is consistent with the definition of “encircle,” which includes the word “surround.” PO Resp. 15; *see also*, Ex. 2045 (a dictionary definition of the verb “encircle,” defining it to mean “[t]o form a circle around; surround”). It is Patent Owner’s position that the broadest reasonable construction of the phrase “partially encircle,” as recited in claim 4, means that the “surround frame” encircles “three quarters” of the lens. Tr. 55, ll. 3–9 (“[W]hat we found was three quarters, and that is what we determined is the broadest reasonable construction. It could go as far as 180 degrees, but we didn’t find that.”); *see also id.*, 73, ll. 4–5 (“It must be over 50 percent and probably around three quarters.”). We find no persuasive evidence for this position in the claim language, the Specification, or elsewhere. For instance, we see no mention of any percentages or degrees by which a person of ordinary skill

in the art could objectively evaluate whether something is a “surround frame” or not (e.g., 74 percent versus 76 percent, 269 degrees versus 271 degrees).

Patent Owner also maintains that a “surround frame” does not substantially conceal or cover the lens outside of the plane in which the peripheral border primarily resides. PO Resp. 12–13; Tr. 52, ll. 3–6 (“[A] surround frame is not used to describe something that obscures the plane of the view of the object that is being viewed. It surrounds it but does not obscure it except at the edges.”). We find no persuasive evidence for this position in the Specification or elsewhere. We also note that claim 1 does *not* require the “surround frame” to partially or fully encircle or surround the lens. The only relationship in claim 1 between the “surround frame” and the lens is that light passing through the lens illuminates part of the “surround frame” from below the “surround frame.”

We also find no persuasive evidence for Patent Owner’s assertion that any degree of thickness in a third dimension is “relatively small.” *See* PO Resp. 18. Regarding the alleged “two-dimensional character” of a surround frame, Patent Owner argues that a two-dimensional surround frame has “some significant depth but not significant in the sense that it blocks the view of the plane of view.” *Id.* at 53, ll. 14–21. Again, we are not directed to persuasive evidence in the Specification that supports the proffered distinction between a two-dimensional and a three-dimensional surround frame. Limitations about obscuring or blocking the view are not in the challenged claims. Further, as a practical matter, every physical object has three dimensions, even though one dimension may be substantially smaller than the other two dimensions, e.g., a page of a newspaper. *See, e.g.,* Ex. 1061, 13, l. 18–14, l. 17 (deposition testimony of Patent Owner’s declarant, Dr. Ducharme, stating that a two-dimensional object “doesn’t exist in the real world,” and acknowledging that the exemplary surround frame shown in

Figure 11 of the '370 patent has some thickness). Patent Owner acknowledged that all surround frames—including Patent Owner's alleged two-dimensional, generally planar surround frame—have some thickness, and asserts that this thickness is “a great deal less than the area of the object that it's surrounding.” Tr. 51, ll. 7–13, 69, l. 18–70, l. 2 (acknowledging that the exemplary surround frame in Figure 11 has depth). Neither the claims nor the Specification contain or support such a limitation, and even if they did, Patent Owner's “relatively small” standard would not allow a person of ordinary skill in the art to determine objectively whether a structure has or does not have sufficient thickness to be a “surround frame.”

Accordingly, based on the totality of the evidence and the analysis above, we determine that the broadest reasonable construction of the term “surround frame” in light of the Specification of the '370 patent is a frame disposed at least partially around the lens.⁴

2. Emits Light

a. The Claims

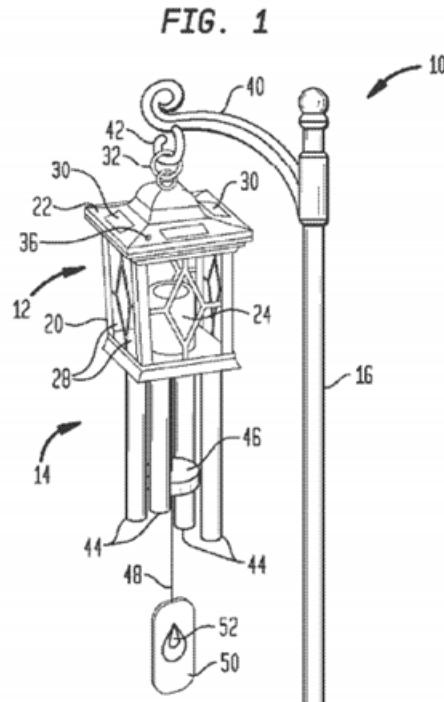
Claims 1, 5, 7, 9, 10, 11, 18, 19, 23, 24, and 28 contain the term “emits light” or a variant of this term. Claim 5, for example, recites that the “pendulum assembly emits light,” and claim 9 recites that the “striker element emits light.” The claims do not provide any specific meaning to the term “emits light.”

b. The Specification

The Specification uses the term “emitting” or “emitted” to describe “a light emitting pendulum.” Ex. 1001, col. 5, ll. 11–13. In the context of the embodiment disclosed in Figure 1, reproduced above in Section I.C, light emitting diode

⁴ Dependent claims 4 and 50 further specify that the surround frame “at least partially encircles” or “at least partially surrounds” the lens, respectively.

(“LED”) 52 is disposed inside pendulum 50, with pendulum 50 being formed of a “suitable translucent or transparent material.” *Id.* at col. 5, l. 67–col. 6, l. 2. We reproduce below a portion of Figure 1 illustrating LED 52 “inside” pendulum 50.



Excerpt from Figure 1 of the '370 patent.

As shown in Figure 1, LED 52 is suspended within an opening or cut-out portion of pendulum 50.

Activating LED 52 causes light “to be emitted by the pendulum 50.” *Id.* at col. 6, ll. 3–6. The only disclosed structure that causes pendulum 50 to emit light is the presence of an LED within the opening or cut-out portion of pendulum 50 and/or the “suitable translucent or transparent material” from which pendulum 50 is made.

An alternative embodiment is shown in Figure 4, which eliminates LED 52 and instead uses tube 62 so that light from light source 24 passes downwards through tube 62 to illuminate striker 46 and pendulum 50. *Id.* at col. 9, ll. 20–38. The Specification also states that tube 62 may be formed of opaque material and

striker 46 and/or pendulum 50 may be “*formed of transparent or translucent material so that light passing downwards through the tube 62 from the light source 24 is emitted by the striker 46 and/or the pendulum 50.*” *Id.* at col. 9, ll. 39–44 (emphasis added).

In the context of the embodiment shown and described in connection with Figure 6, the Specification again emphasizes that the striker or pendulum is “formed at least partly of a suitable translucent or transparent material.” *Id.* at col. 10, l. 51–col. 11, l. 1.

Thus, the only structure disclosed that allows pendulum 50 to emit light is the transparent or translucent material from which it is made.

c. Prosecution History

Application claim 6 (patent claim 1) was amended during prosecution from “light from” to “light emitted from” in order to “more distinctly claim the invention.” Ex. 1003, 158. Applicant stated that “[i]t is believed that [this] amendment[] [has] not changed the scope of the claim.” *Id.*

Application claim 33 (patent claim 28) was amended by an Examiner’s Amendment to add a final clause that “said at least one light source is situated such that a portion of said pendulum assembly emits light.” *Id.* at 203.

The Examiner’s Reasons for Allowance stated, among other things, that the claims “recite the structural significance of . . . at least one light source situated such that a portion of said pendulum assembly emits light.” *Id.* at 206.

d. The Parties’ Positions

Petitioner asserts that “the emission of light includes both (a) reflecting light emanating from a light source that is disposed remotely from the pendulum and striker elements, including when the light source is located in a housing above the pendulum and striker,” such as shown in Figures 4 and 5, “as well as (b) emitting

the light from a light source disposed directly at the pendulum or striker elements,” such as shown in Figure 1 (LED 52 within pendulum 50) or Figure 6 (LED 52 inside striker orb 46 and/or LED 90 inside pendulum 50). Pet. 18; *see* Ex. 1001, col. 10, l. 51–col. 11, l. 1. Based on this analysis, Petitioner asserts that the term “emits light” should be construed to mean “emits light originated by a light source disposed locally or remotely from striker or pendulum elements, including reflects light originated by a light source disposed remotely from the striker or pendulum elements.” Pet. 18–19 (citing Ex. 1002 ¶ 81).

Patent Owner takes a different view. According to Patent Owner, the term “emits light” means “the at least one light source is positioned *on or within* the pendulum assembly such that light generated by the at least one light source *projects from* a surface of the pendulum assembly *or through* the surface *by transmission*.” PO Resp. 18 (citing Ex. 2022 ¶ 95) (emphasis added). We find no support in the Specification for limiting the light source to being on or within the pendulum assembly. To the contrary, in the embodiment of Figures 4 and 5, light source 24 is remote from the pendulum and passes down tube 62 to reach the pendulum. Yet the Specification states that “light passing downwards through the tube 62 from the light source 24 is *emitted* by the striker 46 and/or the pendulum 50.” Ex. 1001, col. 9, ll. 20–44 (emphasis added).

Patent Owner asserts that Petitioner’s “proposed construction is so unreasonably broad that it would encompass reflection of ambient light from any external ‘light source.’” *Id.* at 19. Patent Owner’s argument is not persuasive because the claim language itself limits the light source to the claimed light source. *See, e.g.*, claim 1 (“at least one light source, wherein said at least one light source emits light directed above at least part of said riser portion”). Thus, in the context of the claims, the light cannot come from “any” light source; it must come from the

“light source” that is part of the claimed apparatus. This additional constraint must be taken into account when interpreting the claims.

Patent Owner also argues that “[e]mittance . . . is scientifically considered distinct from reflectance.” *Id.* at 20 (citing Ex. 2018). Exhibit 2018 is a dictionary definition defining “emittance” as “the energy radiated by the surface of a body per second per unit area.” We find no support in the Specification that this definition of “emittance” is what the word “emits,” as used in the ’370 patent, was intended to mean. A dictionary definition of the word “emits,” as used in physics, is “to give off (radiation or particles),” which is more applicable to the technology disclosed and claimed in the ’370 patent.⁵ Therefore, the term “emits,” as described in the Specification and used in the claims, is intended to encompass light that both reflects as well as light that is diffused, whether the light source is remote from the object (as in Figures 4 and 5), adjacent to the object, or within the object (as in Figure 1).

Based on the totality of the intrinsic and extrinsic evidence presented, we determine that the term “emits light” means reflects or transmits light.

B. Asserted Grounds of Unpatentability

Patent Owner asserts three general arguments that affect all of the asserted grounds of unpatentability, which we address first. These three general arguments concern: (1) the Declaration of Dr. Peter Shackle; (2) the skill level of a person having ordinary skill in the art; and (3) the priority date of certain claims of the ’370 patent.

⁵ *emits*. *Collins English Dictionary – Complete and Unabridged*.
<http://www.thefreedictionary.com/emit> (accessed: December 17 2015) (Ex. 3003).

1. Dr. Shackle's Declaration

Petitioner cites and relies on the Declaration of Dr. Shackle, which is Exhibit 1002, for evidentiary support. Patent Owner objects to Dr. Shackle's qualifications as an expert because "Dr. Shackle has never designed a solar light." PO Resp. 10. Patent Owner also objects to Dr. Shackle's qualifications because he conducted a "retrospective review" of the prior art. *Id.* at 11.

Dr. Shackle has a Ph.D. in Physics. Ex. 1002 ¶ 2. Physics is "the branch of science concerned with the properties of matter and energy and the relationships between them. It is based on mathematics and traditionally includes mechanics, optics, electricity and magnetism, acoustics, and heat."⁶ In addition to his academic credentials, Dr. Shackle has over twenty years of experience in the field of lighting electronics, with particular emphasis on LED drivers and electronic ballasts. Ex. 1002 ¶ 3. This experience includes, but is not limited to: President and Founder of Photolume, a consulting company in the field of lighting electronics products; Director of Power Supply Products at Light Based Technologies; Chief Technologist at Lightech Electronics North America, Inc.; and Director of Engineering and later V.P. of Advanced Technology at Universal Lighting Technologies, Inc. *Id.* In these positions, Dr. Shackle was responsible for developing a number of LED circuits and products. *Id.*, App'x A (CV of Dr. Shackle).

The '370 patent refers very generally to LEDs, solar panels, and related circuits. *See, e.g.*, Ex. 1001, col. 6, ll. 25–53. Considering the well-known basic technology of solar cells and solar circuits, and the type and sophistication of the

⁶ *physics*. Dictionary.com. *Collins English Dictionary - Complete & Unabridged 10th Edition*. HarperCollins Publishers.
<http://dictionary.reference.com/browse/physics> (accessed: December 16, 2015) (Ex. 3002).

solar cell technology disclosed and claimed in the '370 patent, Dr. Shackle appears qualified by knowledge, experience, training, and education to testify in the form of an opinion in this proceeding. Patent Owner was entitled to, and did, cross-examine Dr. Shackle based on his Declaration testimony as part of routine discovery. *See* 37 C.F.R. § 42.51(b)(1)(ii).

We discussed the issue of Dr. Shackle's "retrospective review" above in the context of Petitioner's Motion to Exclude evidence on this issue. Dr. Shackle's testimony on this matter does not disqualify him as an expert in this case. As discussed above, we will give his testimony appropriate weight in our analysis.

2. Person Having Ordinary Skill in the Art

Petitioner asserts that "the level of ordinary skill in the art is evidenced by the prior art references of record." Pet. 11. Within that guideline, it is Petitioner's position that a person of ordinary skill in the art typically would have possessed either (1) a graduate degree in electrical or electronics engineering or physics with demonstrable experience in circuit design, or (2) a bachelor's degree in electrical or electronics engineering or physics with two years industrial experience and demonstrable experience in circuit design. *Id.* (citing Ex. 1002 ¶ 36).

Patent Owner takes a different view. It is Patent Owner's position that the level of ordinary skill does not reach a degreed electrical engineer, as proposed by Petitioner. PO Resp. 8. According to Patent Owner, a person of ordinary skill is capable of implementing a circuit for a specified function, and selecting and employing electrical components to perform those functions, but only once he or she is told what is the function the circuit must perform. *Id.* at 5 (citing Ex. 2022 ¶ 43).

In Petitioner's view, the outcome of this case is not dependent on which level of skill we may adopt. Pet. Reply 6. Patent Owner took the same position at

the hearing—the level of skill adopted is not outcome determinative in this case. Tr. 78, l. 12–79, l. 9.

In determining the level of ordinary skill in the art, a court may consider various factors, including “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quoting *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir.1986)).

The '370 patent, Ouyang, and Chliwnyj include circuit diagrams, and Norton and Kuelbs address circuitry for lighting assemblies. The parties seem to agree that a person of ordinary skill in the art would be capable of reading the circuit diagrams and understanding what function(s) they perform, at least at some level. PO Resp. 3 (arguing that “[t]he primary area of expertise of a [person of ordinary skill in the art] is that of a person having knowledge of electrical engineering, in particular the ability to recognize how a pre-designed circuit may operate”); Pet. Reply 2–5.

Patent Owner in its Response, however, asserts that a person of ordinary skill in the art would have had a “basic knowledge of . . . electrical circuits” and related components in solar garden lights, but he or she would be unable to make any modifications to those circuits and would only be capable of taking them whole cloth and inserting them into another device. *See* PO Resp. 4–5; *see also* Ex. 2022 ¶ 39 (Patent Owner’s declarant Dr. Ducharme testifying that a person of ordinary skill would be capable of “making only simplistic changes to the exterior aesthetic of the product to make the product appealing to consumers. But a person of ordinary skill and creativity in the art does not have the ability to re-design the aesthetic effect of a solar garden light by either mechanical or electrical means.”).

Patent Owner would seemingly limit the person of ordinary skill in the art to ornamental design changes only. We reject the notion that a person of ordinary skill in the art would only be capable of making ornamental design variations. Under Patent Owner's proposed level of skill, any functional modification would be beyond the level of ordinary skill in the art and render the modified device patentable (so long as it was not anticipated); this proposed level of skill is so low it eviscerates the notion of obviousness. Instead, upon review of the record before us, we find that a person of ordinary skill in the art is able to comprehend what is being shown in the prior art and has some ordinary level of creativity with respect to their modification. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”).

Based on our review of the factors above in the current record, we agree with Petitioner that a person of ordinary skill in the art at the time of the '370 patent would have had a graduate degree in electrical or electronics engineering or physics with experience in circuit design, or a bachelor's degree in electrical or electronics engineering or physics, with at least two years industrial experience and experience in circuit design, and apply that level of skill for purposes of this Decision. *See* Ex. 1002 ¶ 36.

3. Priority Date

The '370 patent claims priority to two provisional applications, U.S. Provisional Patent Application No. 61/191,027, filed on September 6, 2008, and U.S. Provisional Patent Application No. 60/642,382, filed on January 7, 2005 (the “'382 provisional”). Ex. 1001, 1. Petitioner asserts that “[c]laims 1–6, 7, 9, 10, 14, 17–20, 23, and 48–50 are not entitled to the January 7, 2005, priority date of the '382 provisional application.” Pet. 8.

Patent Owner acknowledges that the '382 provisional does not disclose the claimed connecting frame or surround frame of claims 1–4 and 48–50, which were first disclosed in parent U.S. Patent Application No. 11/303,247, filed December 16, 2005. PO Resp. 60.

We note that the cited references on which Petitioner relies all qualify as prior art under 35 U.S.C. § 102(e) or 35 U.S.C. § 102(b). Petitioner concedes that the priority date issue is no longer relevant to this proceeding. Tr. 46, ll. 3–5 (“It would have been relevant had the patent owner tried to swear behind our prior art. Since he did not, it’s not relevant to this proceeding.”). Thus, we need not determine whether any of the challenged claims are entitled to the benefit of the filing dates of the provisional applications.

4. Claims 1 and 48 – Anticipation or Obviousness Based on Norton

Independent claim 1 includes limitations discussed above concerning a “surround frame.” Claim 48, dependent from claim 1, recites that the “lens is selected from the group consisting of a light transmissive shade, a globe, a diffuser, an at least partially light transmissive housing, an at least partially translucent material, at least one transparent panel, at least one translucent panel, and a housing portion being at least partially transparent or translucent.” Petitioner asserts that claims 1 and 48 are anticipated by Norton (Pet. 20) or, alternatively, would have been obvious in view of Norton (*id.* at 26).

a. General Legal Principles

[U]nless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102.

Net MoneyIN, Inc. v. VeriSign, Inc., 545 F.3d 1359, 1371 (Fed. Cir. 2008); *see also Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987) (“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”). “The identical invention must be shown in as complete detail as is contained in the . . . claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989).

Section 103(a) provides that a patent claim is unpatentable when “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a) (2004). In *Graham v. John Deere Co.*, 383 U.S. 1 (1966), the Court set out a framework for applying the statutory language of § 103:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.

Id. at 17–18. “While the sequence of these questions might be reordered in any particular case, the factors continue to define the inquiry that controls.” *KSR*, 550 U.S. at 407.

The Supreme Court made clear that we apply “an expansive and flexible approach” to the question of obviousness. *Id.* at 415. Whether a patent claiming the combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. To reach this conclusion, however, it is not enough to show merely that the prior art includes separate

references covering each separate limitation in a challenged claim. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness additionally requires that “a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention.” *Id.* “A reference must be considered for everything it *teaches* by way of technology and is not limited to the particular *invention* it is describing and attempting to protect.” *EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 907 (Fed. Cir. 1985).

As a factfinder, we also must be aware “of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.”

KSR, 550 U.S. at 421. This does not deny us, however, “recourse to common sense” or to that which the prior art teaches. *Id.*

Petitioner has the burden of proof to establish by a preponderance of evidence that the challenged claims are not patentable. 35 U.S.C. § 316(e).

Against this general background, we consider the references, other evidence, and arguments on which the parties rely.

b. Norton

Petitioner asserts that claims 1 and 48 are anticipated by Norton or would have been obvious based on Norton.

Norton discloses “solar-powered ornamental lights for indoor and outdoor use.” Ex. 1011 ¶ 4. One objective of Norton is to “enable[] the decorative effect of the lamp to be easily and inexpensively varied as desired to enhance and/or alter the look and feel of the area in which the lamp is located.” *Id.* ¶ 10. The lamp uses a “solar circuit, low voltage electricity, or other power source as a primary source of energy.” *Id.* ¶ 29. The lamp uses an electric bulb, illuminating diode, or any other device which converts electrical energy into optical energy. *Id.* The lamp

assembly incorporates a “dual housing structure having an internal protective element and an external decorative element to protect functional circuitry from damage sustained as a result of normal outdoor use, and to facilitate achieving a selectively varied decor by interchanging the external decorative housing element with other external decorative housing elements having unique features.” *Id.*, Abstract.

Petitioner provides the following annotated Figure 2 from Norton, which we reproduce below. Pet. 21 (citing Ex. 1002 ¶¶ 98–129).

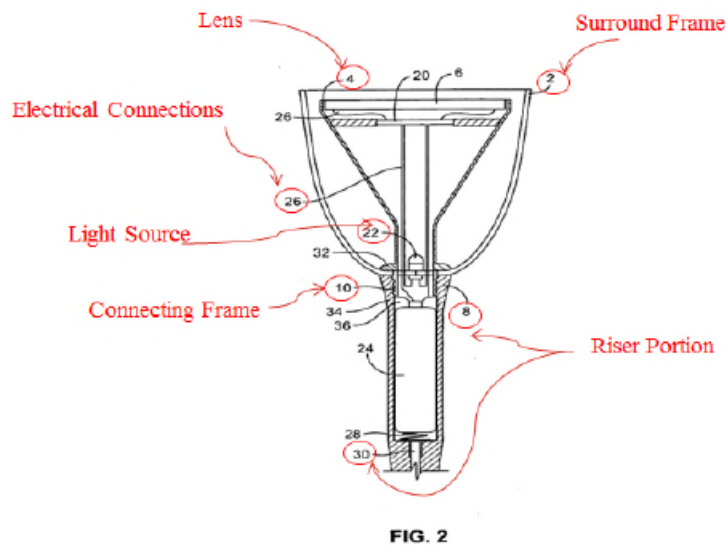


Figure 2 from Norton, as annotated by Petitioner.

Petitioner provides a detailed chart identifying how claims 1 and 48 are anticipated by Norton, and specifying where each element of these claims is found in Norton. Pet. 20–26. Petitioner cites the Declaration of Dr. Shackle for additional evidentiary support. *Id.*

i. Surround Frame

Patent Owner disputes Petitioner’s analysis on several points. Patent Owner asserts that housing 2 in Norton is not a “surround frame” based on Patent Owner’s proposed interpretation of that term. PO Resp. 25–27. As discussed above, we did

not adopt Patent Owner’s proposed construction. Under the construction adopted, a frame disposed at least partially around the lens, we determine that housing 2 in Norton, as advocated by Petitioner (Pet. 23), is a “surround frame.”

In Norton, external decorative element 2 surrounds internal protective element 4, which is made of a substantially rigid, translucent material. Ex. 1011 ¶¶ 30 (“An external decorative housing element 2 may surround a portion or the entire internal decorative housing element 4.”), 32, 37. Internal protective element 4 is “substantially enveloped by” external decorative element 2. *Id.* ¶ 37. External decorative element 2 is illuminated by a “luminous body 22” located underneath internal protective housing element 4. *Id.* The term “luminous body” refers to an electric bulb, illuminating diode, or any other device that converts electrical energy into optical energy. *Id.* ¶ 29. Thus, external decorative element 2 is disposed at least partially around the lens (i.e., internal protective element 4) (claim 1). *See* Pet. 22–24.⁷

ii. Light Transmissive Lens

Patent Owner also asserts that Norton does not disclose “an at least partially light transmissive lens . . . wherein light emitted from said at least one light source causes at least part of said lens to illuminate,” as recited in claim 1. PO Resp. 28.

Norton discloses internal protective element 4. Ex. 1011 ¶ 30. Internal protective element 4, shown in Figure 2 above, and also in Figures 3 and 6, covers

⁷ It also at least partially encircles the lens (claim 4) due to its circular shape, and at least partially surrounds the lens (claim 50) because it partially encloses the lens on the bottom of the lens. *See* Pet. 32–34; Ex. 1011 ¶¶ 32 (“An external decorative element 2 may comprise any shape or configuration capable of surrounding a portion or whole of the internal protective element 4.”), 37 (“An internal protective element 4 may comprise any shape or configuration capable of being . . . substantially enveloped by an external decorative element 2.”); Ex. 1002 ¶¶ 157–159, 169–171.

at least part of light source 22, and external decorative element 2 does not obscure internal protective element 4 entirely from view. *See id.* ¶¶ 30, 37 (describing both elements 2 and 4 as being “decorative”). Norton also discloses that internal protective element 4 may comprise a substantially rigid, translucent material. *Id.* ¶ 37. Thus, light emitted from light source 22 passes through element 4 and causes at least part of element 4 to illuminate. Ex. 1002 ¶ 111.

iii. Lens Type

Patent Owner also asserts that claim 48 is not anticipated by Norton because Norton does not disclose a “selection of a decorative lens of different configurations for viewing by users.” PO Resp. 28. Claim 48 requires only that the lens be selected from the following group: a light transmissive shade, a globe, a diffuser, an at least partially light transmissive housing, an at least partially translucent material, at least one transparent panel, at least one translucent panel, and a housing portion being at least partially transparent or translucent. Element 4 in Norton is made from a translucent material (Ex. 1011 ¶ 37), and thus is at least either a “translucent material,” a “translucent panel,” or a partially translucent housing, which is all that claim 1 requires. Contrary to Patent Owner’s argument (PO Resp. 28), claim 1 does not require a “selection of a decorative lens of different configurations for viewing by users.”

iv. Activation Circuit

Claim 1 recites an “activation circuit” to provide power to the light source from the rechargeable power source only at low light levels.

Petitioner asserts that Norton discloses an activation circuit (e.g., controller board 20 and/or photoresistor 38) to provide power to light source 22 from rechargeable power source 24 only at low light levels. Pet. 25 (citing Ex. 1002 ¶¶ 124–126).

Alternatively, Petitioner asserts the claimed activation circuit would have been obvious over Norton.

Norton discloses that a “light sensor may be attached to the lamp to enable or disable the electrical connection between the battery and the luminous body, depending on the availability and magnitude of external light. Ex. 1011 ¶ 6. Controller board 20 enables luminous body 22 to illuminate the solar lamp when photoresistor 38 indicates darkness. *Id.* ¶ 39.

Dr. Ducharme, Patent Owner’s declarant, testified that a controller board enables a light to turn on when a photoresistor indicates it is dark outside. Ex. 1061, 135, ll. 14–17. Dr. Ducharme also testified that a light activation circuit “is one that switches power based on light levels.” *Id.* at 139, ll. 1–5.

Thus, we agree with Petitioner that Norton discloses the claimed “activation circuit.”

Regarding the ground of obviousness, Petitioner asserts that to the extent that controller board 20 and/or photoresistor 38 do not explicitly teach providing power “only” at low light levels, a person of ordinary skill in the art “would have understood that these elements could be modified in a well-known manner of only allowing electrical current from the battery to flow to the luminous body when the controller board 20 receives input from the photoresistor 38 indicative that the light level is below a certain threshold.” Pet. 27. The proffered reason for the modification is to provide the “predictable result of ensuring that the light would only be powered when it was needed and to conserve the amount of energy consumed by the light.” *Id.* (citing Ex. 1002 ¶ 135). Petitioner also asserts that we may find that claims 1 and 48 would have been obvious based on Norton because Norton anticipates these claims and “anticipation is the epitome of obviousness.” *Id.* Petitioner’s obviousness analysis is supported by the record and is persuasive.

Patent Owner asserts that Petitioner’s rationale “does not explain how such a modification is an improvement from the perspective of a [person of ordinary skill in the art].” PO Resp. 29. We disagree. Petitioner asserts that the proposed modification would “conserve the amount of energy” used. Pet. 27 (citing Ex. 1002 ¶ 135). We determine that modifying a device to conserve energy is an improvement.

Patent Owner also asserts that Dr. Shackle “is not qualified to testify as to how a [person of ordinary skill in the art] would have been motivated to make the purported modification.” *Id.* We considered above, and rejected, Patent Owner’s challenge to Dr. Shackle’s qualifications to provide opinion testimony as an expert. *See supra* Section III.B.1.

Accordingly, based on the evidence and analysis above, we determine that Petitioner has met its burden with respect to establishing, by a preponderance of the evidence, that claims 1 and 48 are anticipated by Norton, and that claims 1 and 48 would have been obvious based on Norton.

5. Claim 2 – Obviousness Based on Norton and Kao
Claim 3 – Obviousness Based on Norton and Marchese

Petitioner asserts that claim 2 would have been obvious based on Norton and Kao, and claim 3 would have been obvious based on Norton and Marchese.

Claim 2, dependent from claim 1, recites that the lens comprises luminescent material and light from the light source causes at least part of the lens to luminesce. Claim 3, dependent from claim 1, recites that the lens comprises glass portions of a first color and a second color and the light emitted by the light source causes the glass portions to illuminate with more than one color.

Regarding claim 2, Norton discloses modifying the appearance of ornamental features of the lamp so that it may be used “in more than one location

or in connection with more than one event,” including a different holiday or season. Ex. 1011 ¶ 9. As disclosed, “[s]electively interchangeable ornamentation may enable a lamp to adapt to any occasion without impairing its general use.” *Id.*

Kao discloses a glow-in-the-dark garden gazing globe that achieves a decorative swirling effect by applying photoluminescent or phosphorescent pigments to the inner wall of a translucent or transparent housing of a garden gazing globe assembly. Ex. 1016, Abstract. According to Petitioner, “[o]ne of ordinary skill in the art would have understood that the glow-in-the-dark decorative effect of Kao would be attractive to consumers searching for decorations for night-time social events, such as events connected to the Halloween holiday, or to ‘spooky’ or ‘scary’ events, where decorations for these events traditionally have used decorations that contained glow in-the-dark elements.” Pet. 28. Petitioner concludes that because Norton expresses a motivation to be compatible with different uses, it would have been obvious to combine the swirling photoluminescent or phosphorescent globe of Kao with the “universally compatible” (*see* claim 7 of Norton) solar lamp of Norton “to achieve the predictable result of enhancing the lamp’s aesthetic appeal and increasing the lamp’s suitability for use in connection with additional holidays or social events.” *Id.* (citing Ex. 1002 ¶ 136).

Regarding claim 3, Marchese discloses a lamp having clear glass bottle 13 (Ex. 1017, col. 2, ll. 4–5) that includes differently colored glass portions A, B, and C where light source 11 causes the differently colored glass portions to illuminate with more than one color (*id.* at col. 3, ll. 8–11). Petitioner asserts one of ordinary skill in the art would have been motivated to combine the ornamental lamp of Norton with a multi-color glass housing of Marchese to enhance aesthetic appeal, which is one of Norton’s goals. Pet. 30–31.

Patent Owner asserts “[a] person of ordinary skill and creativity, having little or no aesthetic lighting design experience, or mechanical skills to create a new lighting design[], given the low level of innovation in the art, would not and could not have made the suggested modification[s].” PO Resp. 31. Patent Owner misstates the level of ordinary skill. *See supra* Section III.B.1. The references all disclose what may superficially seem like devices with a low level of technology. The references disclose, however, a level of ordinary skill with electrical circuits (Norton) and ornamental lighting devices (Kao and Marchese). Moreover, as the Supreme Court has instructed us, “[a] person of ordinary skill is also a person of ordinary creativity, not an automaton.” *KSR*, 550 U.S. at 421. Further, according to Patent Owner, it would be “contrary to common sense” to position the lens lighting effects of Kao and Marchese behind the translucent external decorative element of Norton, because doing so would obscure them and produce an unpredictable display. *Id.* at 31–33. Given the level of ordinary skill explained above, we are not persuaded that a person of ordinary skill in the art would have been unable to combine the references’ teachings, or found the result unpredictable. In particular, the external decorative element in Norton may be translucent, not opaque, such that an internal lens would still be at least partially visible from the outside and, regardless, the external decorative element would not obscure a view of an internal lens from its open top. *See* Ex. 1011 ¶¶ 30, 32, Fig. 2.

Based on the evidence and analysis above, we determine that Petitioner has met its burden with respect to establishing, by a preponderance of the evidence, that claim 2 would have been obvious in view of Norton and Kao, and that claim 3 would have been obvious in view of Norton and Marchese.

6. Claims 4, 49, and 50 – Obviousness Based on Norton and Chen

Claims 4, 49, and 50 recite design features. Claim 4 requires that the lens is substantially spherical, with the surround frame at least partially encircling the lens. Claim 49 requires the surround frame to have the ornamental shape of an insect, flower, geometric shape, or astronomical shape. Claim 50 requires that the lens is substantially spherical, with the surround frame at least partially surrounding the lens.

Petitioner asserts that Chen discloses an ornamental design for a solar light including a substantially spherical lens. Pet. 32. The rationale for the proposed combination is that it would “further enhance the aesthetic appeal and broaden the use of the [Norton] lamp.” *Id.* (citing Ex. 1002 ¶ 151). Petitioner also states that Norton recognizes that its external decorative element 2 may “comprise any shape or configuration” and specifically lists several different ornamental shapes, including a pumpkin, snowman, sun, and others. *Id.* at 32–33 (citing Ex. 1011 ¶ 32).

Patent Owner argues that there would have been no motivation to change the shape of the structures in Norton. PO Resp. 33–35. We disagree.

The basic objective of Norton’s lamp is to be able to modify the appearance of its ornamental features so that the lamp is readily adaptable to different holidays and seasons. Ex. 1011 ¶ 9 (“Selectively interchangeable ornamentation may enable a lamp to adapt to any occasion without impairing its general use.”). To accomplish this objective, Norton discloses that internal protective element 4 is “universally compatible” with a variety of shapes corresponding to external decorative element 2. *Id.*, claim 7. Internal protective element 4, however, is not of a fixed shape or design; it “may comprise any shape or configuration capable of

being retained by mount portion 8 and substantially enveloped by external decorative element 2.” *Id.* ¶ 37.

Norton also provides a rationale or motivation for interchangeable ornamentation. *Id.* ¶ 9 (“a unitary lamp having ornamentation that may be selectively modified or interchanged to correspond to a new season or holiday requires much less space and expense than the variety of bulky holiday decorations typically found in residential garages and basements”).

Based on the evidence and analysis above, we determine that Petitioner has met its burden with respect to establishing, by a preponderance of the evidence, that claims 4, 49, and 50 would have been obvious in view of Norton and Chen.

*7. Claims 5–7, 9, 10, 17–20, and 23 – Obviousness
Based on Kube and Ouyang*

This group of claims and those in the following sections, the “wind chime” claims, recite devices with chimes and/or pendulums, along with the basic elements of a solar-powered lamp. The claims require, among other elements, a “chime member” and a “pendulum assembly” or “striker” that moves relative to the chime member. The components are arranged to create decorative visual effects. The wind chime claims do *not* include a “surround frame.”

Independent claim 5 is representative of this group of claims and is reproduced below.

5. An illuminated wind indicator, comprising:
 - a suspension device;
 - at least one chime member movably suspended below said suspension device;
 - a pendulum assembly movably suspended below said suspension device such that said pendulum assembly and said at least one chime member move relative to each other;
 - at least one light source situated such that a portion of said pendulum assembly emits light;

at least one rechargeable battery connected so as to provide power to said at least one light source;

at least one solar panel connected such that said at least one rechargeable battery accumulates charge when said solar panel is exposed to ambient light levels of sufficient intensity; and

an activation circuit to provide power to said at least one light source from said at least one rechargeable battery only at low light levels.

Petitioner asserts that these claims would have been obvious based on Kube and Ouyang. Pet. 6, 34.

Kube discloses a solar powered lighting fixture used in combination with wind chimes. Ex. 1012 ¶ 1. Petitioner provides the following annotated Figure 12 from Kube, which we reproduce below. Pet. 35 (citing Ex. 1002 ¶¶ 176–177).

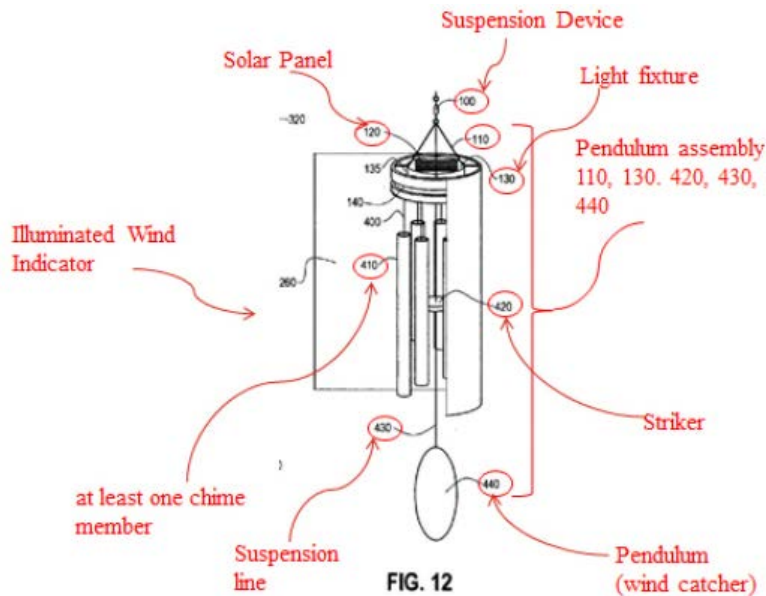


Figure 12 from Kube, as annotated by Petitioner.

The solar-powered lighting and architectural devices disclosed in Kube have a solar cell for collecting solar energy and converting it to electrical energy, which is stored in one or more rechargeable batteries, and an LED, or other suitable light source that is lit after dark. Ex. 1012 ¶ 2. These devices also have electronic circuitry to control the charging of the batteries and to switch the light on at night.

Id. Kube discloses an example of using these solar-powered lights by suspending wind chimes under a hanging solar light fixture to illuminate the wind chimes at night. *Id.* ¶ 3.

Kube also focuses on the design and ornamental aspects of combining solar light fixtures with wind chimes. Kube discloses that the combined light and wind chime devices, “[p]articularly those made with glass, crystal, and other translucent, or see through materials are striking when lit at night.” *Id.* ¶ 21. As disclosed in Kube, “[c]ut glass and crystal can refract and reflect interesting patterns, such as rainbows. Colored glass is also very interesting in these direct lighting situations. Simple translucent colored beads can be arranged in pleasing ways to be illuminated by these lights.” *Id.*

Kube also provides a rationale for making various ornamental and design changes to combined solar-powered light fixtures and wind chimes:

The variations on how the above-described solar light fixtures utilizing wind powered effects can be used is virtually unlimited. Ideally, the basic solar light fixture will be able to be used in a very wide array of effects with a wide array of purposes. This allows the manufacturer to combine the fixture with each of those effects, and sell larger volumes of the fixtures. Such volume sales help the manufacturer recuperate design, development, marketing, and associated costs quickly. It also allows the products to be introduced into a wider array of uses more quickly.

Id. ¶ 33. Kube also discloses that:

The fixtures themselves can take on added circuitry to provide additional effects. Multi-colored lights can be switched on and off for example. Other electronic enhancements can be added as well. Sound effects can be introduced, along with a proximity or motion sensor, and having circuitry to generate sounds as a person approaches the fixture.

Id. ¶ 34.

Petitioner asserts that the wind chimes of Ouyang include LED light sources located in the pendulum, as well as in the striker. Pet. 34 (citing Ex. 1014, 3, Fig. 5). Petitioner concludes that “as a matter of design choice” it would have been obvious to one of ordinary skill in the art “to look to Ouyang for various additional options that teach locating the light source at the striker or pendulum.” *Id.* at 34–35 (citing Ex. 1002 ¶¶ 172–173).

Patent Owner asserts that “Kube teaches away from utilizing the unique aesthetic of Ouyang” and combining Ouyang with Kube “would render Kube inoperable for its intended purpose.” PO Resp. 36–44. (citing Ex. 2022 ¶¶ 148–150). Patent Owner further argues that it would not have been obvious to relocate the lights in Kube based on Ouyang because they are “aesthetically distinct” from the claimed devices and Kube teaches away from such relocation. *Id.* at 45–54. Patent Owner focuses on a single embodiment in Kube and ignores other teachings of the reference. Kube teaches a “very wide array of effects with a wide array of purposes.” Ex. 1012 ¶ 33. Kube also teaches specifically that “[t]he fixtures themselves can take on added circuitry to provide additional effects.” *Id.* ¶ 34. Kube mentions detachable accessories in the context of an “added function” or “mode of operation.” *Id.* ¶¶ 15, 59, 65–66, 73, 76, 79–80, 88. Furthermore, Kube explicitly describes embodiments not having detachable chimes. *See* Ex. 1073 ¶ 60–61 (citing Ex. 1012 ¶¶ 26, 29, 33, 34, 45, 68).

Drs. Ducharme and Shackle agree that Kube teaches metal clips 350, which could conduct electricity between the solar light fixture and detachable accessories. Ex. 1012 ¶ 80, Fig. 11; Ex. 1061, 163, ll. 20-22; Ex. 1073 ¶ 62. Ouyang teaches using conductors to couple a battery to LEDs in wind-chime pendulums to achieve the predictable result of a wind chime that gives out decorative light. Ex. 1073 ¶ 62 (citing Ex. 1014, 3). A person of ordinary skill would have been motivated to

combine the references because Kube teaches adding circuitry for more than one LED to create a “very wide array of effects with a wide array of purposes.” Ex. 1073 ¶ 60 (citing Ex. 1012 ¶ 33).

The obviousness inquiry does not ask “whether the references could be physically combined but whether the claimed inventions are rendered obvious by the teachings of the prior art as a whole.” *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc); *see also In re Mouttet*, 686 F.3d 1322, 1333 (Fed. Cir. 2012) (the test for obviousness asks what “the combined teachings of the references would have suggested to those having ordinary skill in the art”); *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.”).

The Supreme Court has made clear that we apply “an expansive and flexible approach” to the question of obviousness. *KSR*, 550 U.S. at 415. We look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. *Id.* at 418. As the Supreme Court recognized, in many cases a person of ordinary skill “will be able to fit the teachings of multiple patents together like pieces of a puzzle.” *Id.* at 420.

Patent Owner also argues that given the “limited creativity of a [person of ordinary skill in the art],” it would not have been obvious to try what are “unlimited possibilities” in arrangement of light relative to the device of Kube to reach the claimed invention using Ouyang “with any reasonable expectation that

such a combination would succeed in being aesthetically pleasing.” PO Resp. 37. As discussed above, the level of ordinary skill and creativity is not as limited as asserted by Patent Owner. *See supra* Section III.B.2.

Additionally, Patent Owner argues that Kube produces an “illumination effect,” whereas the invention in the challenged claims produces a “display effect.” *Id.* at 46–47 (citing Ex. 2022 ¶¶ 166, 167, 169). There is no support in the claims or Specification of the ’370 patent for such a distinction.

Petitioner’s obviousness analysis regarding claims 5–7, 9, 10, 17–20, and 23 is supported by the disclosures of Kube and Ouyang, as well as the testimony of Dr. Shackle, and is persuasive. *See* Pet. 34–47. Based on the evidence and analysis above, we determine that Petitioner has met its burden with respect to establishing, by a preponderance of the evidence, that claims 5–7, 9, 10, 17–20, and 23 would have been obvious in view of Kube and Ouyang.

*8. Claims 28, 43, and 45 – Obviousness
Based on Kube, Ouyang, and Kuelbs*

Claims 28, 43, and 45 are independent claims. These claims require, among other limitations, component details and limitations pertaining to the location of “power and control circuitry.”

Independent claim 28, for example, requires at least one light source “situated such that a portion of [the] pendulum assembly emits light.”

Kube and Ouyang are discussed above. With respect to the specific limitations recited in this group of claims, Kube discloses, in Figures 11 and 12 and the associated text, wind chimes 410 suspended by wind chime suspension lines 400 connected to suspension ring 300. Clips 350 detachably connect suspension ring 300 to a solar light fixture. Wind catcher 440 is connected to line 430 which is in turn [is] connected to wind chime clapper 420, which is suspended

via clapper suspension line 430 passing through it from wind catcher 440 to suspension ring 300.” Ex. 1012 ¶ 80.

Petitioner asserts that while Kube inherently teaches electrical connections of the various power and control circuitry, Kuelbs “includes an express teaching of how these elements are connected.” Pet. 48. Petitioner’s claim chart, beginning on page 48 of the Petition, specifies where each element of the claims challenged under this ground of unpatentability is found in the prior art relied upon.

Petitioner relies on the following annotated Figure 8 from Kuelbs, which we reproduce below. Pet. 51 (citing Ex. 1002 ¶¶ 310–311).

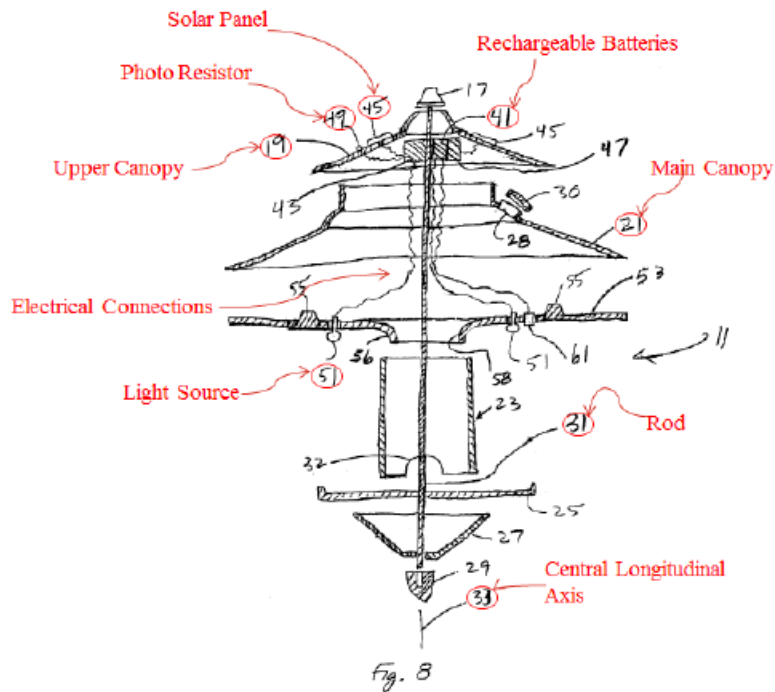


Figure 8 from Kuelbs, as annotated by Petitioner.

Petitioner asserts that Kuelbs discloses power and control circuitry, including rechargeable batteries 41, photo resistor 49, one solar panel 45, and light source 51, all electrically connected to form an illumination circuit, as shown in Figure 8 from Kuelbs. *Id.*

Petitioner asserts that one of ordinary skill in the art at the time of the invention would have been motivated to look to Kuelbs when configuring the electrical connection of Ouyang in combination with Kube. *Id.* at 48 (citing Ex. 1002 ¶ 289). Petitioner also asserts that Kuelbs discloses one of many examples of circuitry configuration that provide the desired result of connecting electrically the solar panel, the rechargeable battery, the photoresistor, and the light source depicted in Kube in combination with Ouyang. *Id.*

Patent Owner asserts that “Kuelbs does not teach electrical connections that would have predictably resulted in the claimed electrical connections that locate ‘one light source [] situated such that a portion of said pendulum assembly emits light.’” PO Resp. 54 (citing Ex. 2022 ¶ 182). According to Patent Owner, Kuelbs does not disclose any circuitry for positioning the LEDs in or on a pendulum assembly such that a portion of the pendulum assembly emits light, as claimed. *Id.* at 55. Patent Owner also asserts that the lighting effect created by Ouyang is contradictory to “the distinctive effect” of Kuelbs. *Id.* at 56.

As Petitioner points out, claim 28 requires that the light source is “situated such that a portion of said pendulum assembly emits light.” As illustrated in Petitioner’s annotated Figure 12 of Kube, reproduced above, light fixture 130 of Kube is situated above the striker and pendulum elements of the pendulum assembly. The light source in light fixture 130 is situated such that “a portion of the pendulum assembly emits light.” Ex. 1002 ¶ 187. Kube teaches electrical connections of the power and control circuitry, solar panel, and light source elements that are necessary to form an illumination circuit to power the disclosed “solar powered landscape and architectural lighting used in combination with wind driven landscape and architectural accents such as windsocks, wind chimes, and or other substantially ornamental objects.” Ex. 1012 ¶ 1.

Kuelbs, in Figure 8, expressly teaches an example of how these elements may be electrically connected. Ex. 1002 ¶ 289. Based on our construction of the term “emits light,” we determine that the combined references emit light as recited in the claims.

Regarding claims 43 and 45, Figure 8 of Kuelbs shows extending the electrical connections from rechargeable battery 41 and solar panel 45 located at upper canopy 19 to lighting elements 51 located below. Ex. 1019, col. 3, l. 25–col. 4, l. 14, Fig. 8.

We are persuaded by Dr. Shackle’s analysis that

[a] person of ordinary skill in the art would have understood to attach the LED circuits of Ouyang to the metal clips 350 of Kube, to electrically connect LEDs in the wind chimes to the solar fixture. Adding such wires and LEDs would not have affected the durability of the wind chimes or windsock because the clips would have otherwise remained the same, and any additional weight would be negligible.

See Ex. 1073 ¶¶ 65–78.

According to Petitioner, a person of ordinary skill in the art “would have been motivated to look to Kuelbs when configuring the electrical connection of Ouyang in combination with Kube, as one of the many examples of circuitry that provides the predictable result of connecting electrically the solar panel, the rechargeable battery, the photoresistor, and the light source depicted in Kube in combination with Ouyang.” Pet. Reply 22 (citing Ex. 1002 ¶ 289). We agree. We also do not view the lighting effects of the references as so different that a person of ordinary skill in the art would not have considered combining them, as argued by Patent Owner.

Petitioner’s obviousness analysis regarding claims 28, 43, and 45 is supported by the disclosures of Kube, Ouyang, and Kuelbs, as well as the

testimony of Dr. Shackle, and is persuasive. *See* Pet. 48–58. Based on the evidence and analysis above, we determine that Petitioner has met its burden with respect to establishing, by a preponderance of the evidence, that claims 28, 43, and 45 would have been obvious in view of Kube, Ouyang, and Kuelbs.

*9. Claim 14 – Obviousness
Based on Kube, Ouyang, and Chliwnyj*

Claim 14, dependent from claim 5, requires that the light emitted by the pendulum assembly “varies in color.”

Petitioner asserts that Kube and Ouyang apply as discussed above with respect to independent claim 5. Pet. 58. Petitioner further asserts that “Ouyang teaches LEDs that emit light of varying color, while Chliwnyj teaches a solar light including an implementation of LED color changing circuitry.” *Id.* It is Petitioner’s position that one skilled in the art would have been motivated to use the color changing circuitry of Chliwnyj as a way to implement the color varying functionality disclosed in Ouyang. *Id.* (citing Ex. 1002 ¶ 379).

Chliwnyj discloses a microprocessor-based simulated electronic flame using multiple LEDs that are controlled to give the appearance of flame motion, and that the use of a plurality of colors enhances the effect of motion. Ex. 1020, col. 2, ll. 26–31; *see also id.*, Abstract.

Patent Owner asserts that a person of ordinary skill and creativity would not have “determined that the expected lighting effect produced by the proposed combination would have been predictably aesthetically pleasing.” PO Resp. 57 (citing Ex. 2022 ¶ 186). According to Patent Owner, “[w]ithout a predictable aesthetic result, there would have been no expectation of success in the claimed combination.” *Id.* We find Patent Owner’s assertions unpersuasive.

Patent Owner acknowledges that Chliwnyj teaches the use of LEDs that may also enhance flame motion due to color changes. *Id.* (citing Ex. 1020, col. 2, ll. 39–40). Chliwnyj also discloses that the flame is “constantly changing.” Ex. 1020, Abstract. Patent Owner asserts, however, that a person of ordinary skill and creativity could not have predictably, and with an expectation of success, modified Kube further in view of Chliwnyj to add colors that vary. PO Resp. 57. According to Patent Owner, a person having knowledge of electrical engineering would not be qualified to understand how the optical characteristics of surfaces interacting with visible light would affect the ornamental aspects of a solar light product. *Id.* Essentially, Patent Owner is repeating his argument that a person of ordinary skill and creativity, “having little or no aesthetic lighting design experience, or mechanical skills to create . . . new lighting designs,” could not have made the suggested modifications. *Id.* at 31. We do not agree that the level of ordinary skill in the art is so limited, for the reasons explained above. *See supra* Section III.B.2.

Patent Owner’s declarant, Dr. Ducharme, also testified that he did not know what “aesthetically predictable” means. Ex. 1062, 34, l. 20–35, l. 7.

Moreover, Ouyang discloses LEDs that emit light that “varies in color.” Ex. 1014, 3 (“the LED emits soft decorative light with alternating colors”). Petitioner asserts that a person of ordinary skill “would have been motivated to look to Chliwnyj’s color-changing circuitry to implement the light that ‘varies in color,’ as taught and suggested by Ouyang.” Pet. Reply 24 (emphasis omitted) (citing Ex. 1002 ¶ 379). We agree.

Petitioner’s obviousness analysis regarding claim 14 is supported by the disclosures of Kube, Ouyang, and Chliwnyj, as well as the testimony of Dr. Shackle, and is persuasive. *See* Pet. 58–60. Based on the evidence and analysis above, we determine that Petitioner has met its burden with respect to

establishing, by a preponderance of the evidence, that claim 14 would have been obvious in view of Kube, Ouyang, and Chliwnyj.

III. CONCLUSION

Upon consideration of the Petition and Preliminary Response, and based on the analysis in this Decision, we are persuaded that a preponderance of the evidence establishes that claims 1–7, 9, 10, 14, 17–20, 23, 28, 43, 45, and 48–50 of the '370 patent are unpatentable.

IV. ORDER

For the reasons given, it is:

ORDERED that, based on Petitioner's showing by a preponderance of the evidence, claims 1–7, 9, 10, 14, 17–20, 23, 28, 43, 45, and 48–50 of the '370 patent are unpatentable;

FURTHER ORDERED that we grant Petitioner's Motion to Seal (Paper 36);

FURTHER ORDERED that we deny-in-part and dismiss-in-part Patent Owner's Motion to Exclude Evidence (Paper 50); and

FURTHER ORDERED that we deny-in-part and dismiss-in-part Petitioner's Motion to Exclude Evidence (Paper 49).

This is a final decision. Parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2014-00935
Patent 8,089,370 B2

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