

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ATLANTA GAS LIGHT COMPANY,
Petitioner,

v.

BENNETT REGULATOR GUARDS, INC.,
Patent Owner.

Case IPR2015-00826
Patent 5,810,029

Before JENNIFER S. BISK, JAMES B. ARPIN, and
PATRICK M. BOUCHER, *Administrative Patent Judges*.

BOUCHER, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

Atlanta Gas Light Company (“Petitioner”) filed a Petition (Paper 1, “Pet.”) to institute an *inter partes* review of claims 1–8 of U.S. Patent No. 5,810,029 (Ex. 1001, “the ’029 patent”). After consideration of a Preliminary Response (Paper 6) filed by Bennett Regulator Guards, Inc. (“Patent Owner”), the Board instituted review of claims 1–8. Paper 12 (“Institution Decision” or “Dec.”).

During the trial, Patent Owner filed a Patent Owner Response (Paper 16, “PO Resp.”), and Petitioner filed a Reply to the Patent Owner Response (Paper 21, “Reply”). An oral hearing was held on June 23, 2016, and a transcript of that hearing has been entered in the record. Paper 30 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). This Decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the claims on which we instituted trial. Based on the record before us, Petitioner has shown, by a preponderance of the evidence, that claims 1–8 of the ’029 patent are unpatentable.

B. The ’029 Patent

1. Overview

The ’029 patent, titled “Anti-Icing Device for a Gas Pressure Regulators,” issued on September 22, 1998, based on Application No. 08/491,273. The ’029 patent “relates to natural gas distribution and especially to problems associated with the pressure regulator valve used to

reduce gas pressure from the relatively high level used in a distribution system to the relatively low pressure level used in a customer's building or residence.” Ex. 1001, col. 1, ll. 5–9. Typically, the pressure regulator includes a flexible diaphragm that divides the interior space of a surrounding diaphragm housing into low-pressure and atmospheric-pressure chambers, with an opening provided to vent the atmospheric-pressure chamber to the atmosphere. *Id.* at col. 1, ll. 37–44. Because the pressure regulator commonly is mounted on the outside of a building, where it is exposed to prevailing weather conditions, the vent typically is protected with a vent tube having a downward orientation that prevents precipitation from entering the vent tube. *Id.* at col. 1, ll. 51–60. A metal screen over an outlet end of the vent tube further protects against intrusion by insects. *Id.* at col. 1, ll. 56–60. As the '029 patent explains, these precautions do not prevent problems associated with icing, which can manifest by the formation of an icicle or by splashing of freezing rain, either of which eventually may block the vent tube. *Id.* at col. 1, ll. 61–67.

Figure 4 of the '029 patent is reproduced below:

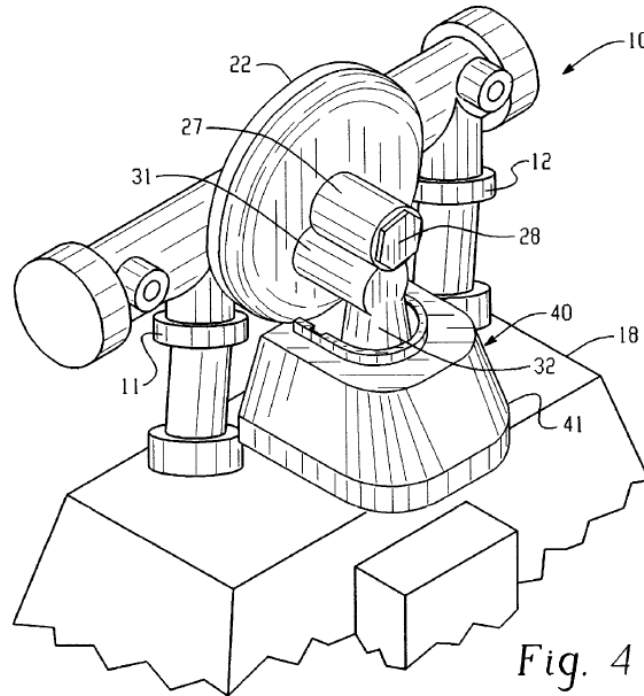


Figure 4 of the '029 patent illustrates a flared skirt assembly 40 connected to vent tube 31. The skirt assembly “prevents the formation of an icicle over the end 32 of the vent tube by enclosing the space around the vent tube and providing a substantially expanded passage.” *Id.* at col. 3, ll. 47–49. In addition, “because the skirt assembly is flared out substantially from the center line of the exit passage, rain or freezing rain is deflected away from an area where it could splash upwardly back into the vent tube.” *Id.* at col. 3, ll. 50–53).

Figure 6 of the '029 patent, reproduced below, illustrates a further feature of the skirt assembly:

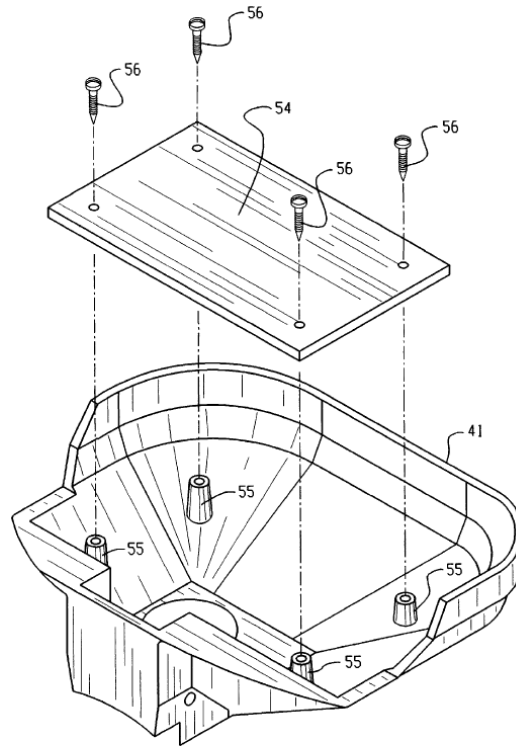


Fig. 6

Figure 6 of the '029 patent provides an exploded perspective view of the bottom of the skirt assembly, showing baffle plate 54 having edges that “are sufficiently spaced from the interior walls of the skirt that substantial space is provided for the venting of gas and or air through the skirt.” *Id.* at col. 4, ll. 6–8. A screen may be mounted at the lower end of the skirt to prevent insect intrusion. *Id.* at col. 4, ll. 8–9.

2. Prosecution History

The '029 patent issued on a first-action allowance, and underwent an *ex parte* reexamination initiated by Patent Owner. See Ex. 1010. During the reexamination, Patent Owner argued that claims 1–8 are not anticipated by

Canadian Meter Company Inc., *Quality Communiqué: Domestic Regulator Approval* (April 1992) (Ex. 1007), a reference cited to support certain challenges in the Petition on which we did not institute. Pet. 39–50; *see* Dec. 27. The Office confirmed claims 1–8. Ex. 1010, 12–14.

C. Illustrative Claim

Claim 1 is illustrative of the claims at issue:

1. A skirt assembly for reducing ice formation at an outlet vent tube from the atmospheric pressure chamber of a diaphragm-type gas pressure regulator, comprising:

a skirt receiver adapted to be operatively connected to said vent tube;

a skirt member defining an interior space and having an upper end opening connecting said vent tube to said interior space and an outwardly flared lower end with an area substantially greater than the area of said upper end opening, said skirt member being operatively connected to said skirt receiver means; and

baffle means located in said interior space to underlie said upper end opening and being spaced from the interior walls of said skirt to permit gas flow therearound;

whereby ice formation tending to block said vent tube is inhibited.

Ex. 1010, col. 4, ll. 41–57.

D. References Relied Upon

Petitioner relies on the following references. Pet. 6–7.

Peterson '087	US 2,620,087	Dec. 2, 1952	Ex. 1002
Peterson '573	US 3,012,573	Dec. 12, 1961	Ex. 1004

Ferguson	US 3,985,157	Oct. 12, 1976	Ex. 1005
Ohmae	US 4,957,660	Sept. 18, 1990	Ex. 1006

Prior art described at column 1, lines 13–50 of the '029 patent (Ex. 1001).

E. Instituted Grounds of Unpatentability

We instituted trial on the following grounds of unpatentability.

Dec. 31.¹

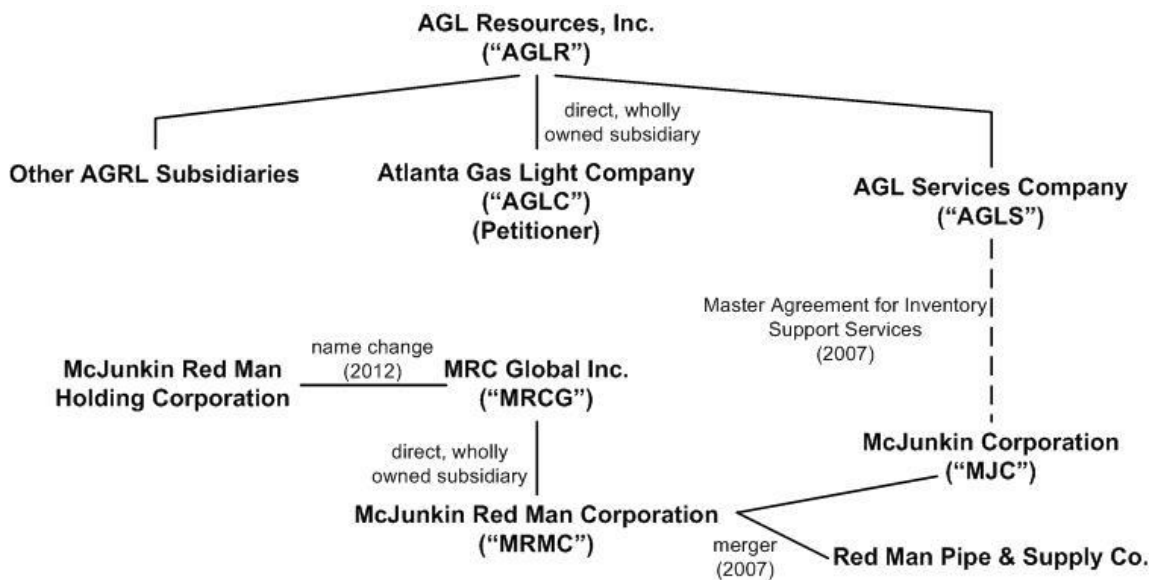
Reference(s)	Basis	Claims Challenged
Peterson '087	§ 102(b)	1 and 5
Peterson '087 and Peterson '573	§ 103(a)	1 and 5
Peterson '087 and Ferguson	§ 103(a)	2, 4, 6, and 8
Peterson '087, Ferguson, and Peterson '573	§ 103(a)	2, 4, 6, and 8
Peterson '087, Ferguson, and Ohmae	§ 103(a)	3 and 7
Peterson '087, Ferguson, Ohmae, and Peterson '573	§ 103(a)	3 and 7
Peterson '087 and prior art described in the '029 patent	§ 103(a)	1 and 5

¹ Prior art described in a patent challenged in an *inter partes* review proceeding is within the scope of prior art that may be considered under 35 U.S.C. § 311(b). *See, e.g., Intri-Plex Technologies, Inc. v. Saint-Gobain Performance Plastics Rencol Ltd.*, Case IPR2014-00309, slip op. at 21–22 & n.8 (PTAB March 23, 2014) (Paper 83). For each asserted ground in which Petitioner relies on prior art described in the '029 patent, Petitioner also asserts that it relies on the “knowledge of a person of ordinary skill in the art.” Such knowledge may be relevant to a determination “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). In certain instances, it may also be relevant to determination of the scope of the prior art. *See Arendi SARL v. Apple Inc.*, 2016 WL 4205964 (Fed Cir. Aug 10, 2016).

Reference(s)	Basis	Claims Challenged
Peterson '087, Ferguson, and prior art described in the '029 patent	§ 103(a)	2, 4, 6, and 8
Peterson '087, Ferguson, Ohmae, and prior art described in the '029 patent	§ 103(a)	3 and 7

F. Related Proceedings

The issues presented to us involve a number of parties. The Board's diagram below summarizes the relationships among those parties.



The summary of relationships provided by the above diagram is relevant to, *inter alia*, Patent Owner's argument that a privy of Petitioner—namely, McJunkin Red Man Corporation ("MRMC")—was served with a complaint alleging infringement of the '029 patent more than a year before the Petition was filed. See PO Resp. 11–12, 55–57.

Petitioner is a distributor of natural gas in Georgia. Ex. 2006, 4. It is a direct, wholly owned, subsidiary of AGL Resources, Inc. (“AGLR”), which has a number of other subsidiaries. *Id.* One of those other subsidiaries is AGL Services Company (“AGLS”). *Id.* at 5.

MRMC is a distributor of pipe, valve, and fitting products to the energy and industrial markets. Ex. 2010. It is a direct, wholly owned, subsidiary of MRC Global Inc. (“MRCG”), which was known as McJunkin Red Man Holding Corporation before it amended its certificate of incorporation and bylaws to effect a name change on January 12, 2012. *Atlanta Gas Light Co. v. Bennett Regulator Guards*, IPR2013-00453, Ex. 1028 ¶ 4. MRMC itself was formed in 2007 from the merger of McJunkin Corporation (“MJC”) and Red Man Pipe & Supply Co. Ex. 2010.

MRCG and MRMC share the same office space, have the same telephone number, have the same facsimile number, and, at relevant times, have had the same upper management. Exs. 2007, 2008, 2009, 2012, 2013. The Texas Secretary of State’s records show that MRMC is registered as a foreign corporation and that an agent for service of process has been designated. Exs. 2012, 2013. Patent Owner contends, and Petitioner does not dispute, that the Texas Secretary of State has no records for MRCG. Prelim. Resp. 15.

G. The Supply Agreements

On July 1, 2001, AGLR “and its present and future subsidiaries” entered into a Systems Contract Agreement with MJC (“the 2001 Agreement”) for materials at an agreed price schedule. Ex. 2017 ¶ 36. On January 1, 2007, the 2001 Agreement was amended and expanded by way of a Master Agreement for Inventory Support Services (“the 2007 Agreement”). Ex. 2018. The entities covered by the 2007 Agreement include AGLS, “in its own behalf and/or on behalf of [AGLR] and one or more of the subsidiaries of [AGLR].” *Id.* The 2007 Agreement includes certain indemnification provisions, and AGLR and MRCG have disputed the scope of indemnification obligations as they relate to proceedings described below. *See, e.g.*, Exs. 2031–2033.

H. The Ohio Lawsuit

The ’029 patent is currently involved in *Bennett Regulator Guards, Inc. v. McJunkin Red Man Corp.*, Civil Action No. 5:12-cv-1040 (N.D. Ohio) (“the Ohio lawsuit”). Pet. 1–2.

The Ohio lawsuit arose from allegations by Patent Owner that Petitioner and MRMC developed and sold a product that infringes the ’029 patent. Prelim. Resp. 49. Patent Owner specifically contends that “MRMC has a direct, preexisting, substantive relationship with AGLR and its subsidiaries such as AGLC concerning the development, manufacture and sale of the product that has been accused of infringing the ’029 patent.” *Id.* Patent Owner further contends that “[t]hat relationship arises from MRMC

and AGLR and its subsidiaries being parties to the 2001 and 2007 Agreements that govern the development and sale of the Accused Product.” *Id.*

Patent Owner filed a complaint (Ex. 2002) initiating the Ohio lawsuit on April 26, 2012. Paper 6, 13. The caption of the complaint identified Petitioner and MRCG as defendants; the body of the complaint included assertions that “[u]pon information and belief, on or about January 10, 2012, McJunkin Redman Corporation . . . changed its name to MRC Global Inc.,” and that references to MRCG referred both to MRCG and to “McJunkin Redman.” Ex. 2002 ¶ 3. MRCG was served with the complaint on July 11, 2013. Ex. 2003. Petitioner was served with the complaint on July 18, 2013. Pet. 2; Ex. 2060, Dkt. #4.

The complaint’s assertion that MRMC changed its name to MRC Global Inc. proved incorrect. In fact, as noted above, MRCG amended its certificate of incorporation and bylaws on January 10, 2012, to reflect a name change of McJunkin Red Man Holding Corporation to MRCG. Subsequently, Patent Owner filed an amended complaint, naming Petitioner and MRMC as defendants, and deleting MRCG as a named defendant. Ex. 2004. Petitioner and MRMC consented to the filing of the amended complaint, with both Petitioner and MRMC agreeing that the amended complaint “relates back to the filing of the Complaint on April 26, 2012.” Ex. 2005; see Paper 6, 16.

On July 3, 2013, the district court dismissed Petitioner as a defendant for lack of personal jurisdiction. Exs. 1017, 2006. The parties agree that the dismissal was without prejudice. Pet. 2, Paper 6, 6.

I. The Related IPR

The '029 patent was also the subject of IPR2013-00453 (“the related IPR”), which was terminated upon a finding that Petitioner failed to establish that it had identified all real parties-in-interest in its petition. *Atlanta Gas Light Co. v. Bennett Regulator Guards, Inc.*, IPR2013-00453, slip op. at 13 (PTAB Jan. 6, 2015) (Paper 88) (citing 35 U.S.C. § 312(a)(2)). We found in the related IPR that AGLR was a real party-in-interest. *Id.* at 13. Petitioner identifies AGLR as a real party-in-interest in this proceeding. Pet. 1.

Certain negotiations regarding the scope of indemnity required by the 2007 Agreement implicate the Ohio lawsuit and the related IPR, and, by logical extension, this proceeding. During the course of those negotiations, AGLR deferred resolution of the indemnification dispute until after resolution of the related IPR, and noted that “even in the absence of an indemnification agreement, AGL has taken steps to support MRC’s defense [in the Ohio lawsuit].” Ex. 2031. In the context of explaining such steps, AGLR asserted that “AGL has also filed a petition for *inter partes* review of Bennett’s U.S. Patent No. 5,810,029 by the U.S. Patent and Trademark Office – at AGL’s sole expense.” *Id.*

MRMC then indicated its willingness to “wait to be indemnified by AGL until the reexamination [*sic: inter partes* review] process has been completed.” Ex. 2032. MRMC also expressed its position on the scope of indemnification as explicitly contingent on the outcome of the related IPR, noting the potential impact of a decision in the related IPR on the Ohio lawsuit. *Id.* Approximately six weeks later, AGLR confirmed that discussions had taken place outlining a possible indemnification structure that depended on the outcome of the related IPR, but disputed that any agreement had been reached. Ex. 2033.

II. ANALYSIS

A. Identification of Real Parties-in-Interest and Time Bar Under 35 U.S.C. § 315(b)

Section 315(b) of Title 35 of the U.S. Code provides:

An inter partes review may not be instituted if the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner, real party in interest, or privy of the petitioner is served with a complaint alleging infringement of the patent.

Patent Owner contends that

[i]f MRMC or MRCG are real parties-in-interest or privies, the present Petition would be barred by either Section 312(a)(2) or the one-year filing requirement of 35 U.S.C. § 315(b). Similarly, if service of the complaint on AGLC in July, 2013 were to be deemed effective despite the subsequent dismissal of AGLC from the Ohio suit without prejudice, then the Petition would be time-barred by Section 315(b).

PO Resp. 11. These statements are accurate. Patent Owner avers that it “presents additional arguments” in its Response, beyond those expressed in its Preliminary Response (Paper 6), and requests reconsideration of our determinations in the Institution Decision that (1) Petitioner is not deemed to have been “served with a complaint alleging infringement” of the ’029 patent within the meaning of 35 U.S.C. § 315(b); and (2) MRMC has not been established to be a privy of Petitioner within the meaning of § 315(b). *Id.* at 12; *see* Dec. 12–17. We have considered these issues anew, based on the full record as developed during trial and in light of the additional arguments presented by Patent Owner in its Response. We conclude that the Petition is not time-barred and that Petitioner has not failed to identify all real parties-in-interest.

1. Service Upon Petitioner

When considering the statutory bar under § 315(b), the Board has consistently held that dismissal without prejudice of a party from district-court litigation nullifies the effect of service on that party of the underlying complaint. *See Oracle Corp. v. Click-to-Call Techs. LP*, Case IPR2013-00312 slip op. at 15–18 (PTAB Oct. 30, 2013) (Paper 26) (precedential) (holding no bar based on voluntary dismissal without prejudice); *Macauto U.S.A. v. BOS GmbH*, Case IPR2012-00004, slip op. at 14–16 (PTAB Jan. 24, 2013) (Paper 18) (holding no bar based on voluntary dismissal without prejudice); *BAE Sys. Info. v. Cheetah Omni, LLC*, Case IPR2013-00175, slip op. at 3–4 (PTAB July 3, 2013) (Paper 15) (same); *Cyanotech Corp. v. Bd.*

of Trustees of the Univ. of Ill., Case IPR2013-00401, slip op. at 9–12 (PTAB Dec. 19, 2013) (Paper 17) (holding no bar based on dismissal without prejudice for failure to join indispensable party); *InVue Sec. Prods. v. Merch. Techs.*, Case IPR2013-00122, slip op. at 9–10 (PTAB June 27, 2013) (Paper 17) (holding no bar based on dismissal without prejudice for lack of subject-matter jurisdiction); *Nautique Boat Co. v. Malibu Boats, LLC*, Case IPR2014-01045, slip op. at 10 (PTAB Nov. 26, 2014) (Paper 13) (holding no bar based on involuntary dismissal without prejudice); *Gordon * Howard Assocs. v. LunarEye, Inc.*, Case IPR2014-01213, slip op. at 10–15 (PTAB Feb. 3, 2015) (Paper 11) (holding no bar based on dismissal without prejudice for lack of personal jurisdiction). We agree with the reasoning behind the conclusions in these cases, and Patent Owner has not articulated sufficient argument and evidence that persuades us to depart from that reasoning.

Patent Owner argues that “Section 315(b) only requires service of a complaint for patent infringement” and that “[t]he statute is silent concerning whether or not service is retroactively ineffective if the complaint is subsequently dismissed.” PO Resp. 56. Patent Owner draws a distinction between voluntary and involuntary dismissals, contending that “[b]y holding that *all* non-preclusive dismissals nullify service of a patent infringement complaint, the Board effectively has amended the statute to expand the Board’s jurisdiction.” *Id.* at 57. We disagree.

The Federal Circuit has characterized the effect of dismissals without prejudice as “leaving the parties as though the action had never been brought,” thereby restoring the ability of parties to pursue courses of action available to them before the action had been brought. *Graves v. Principi*, 294 F.3d 1350, 1355–56 (Fed. Cir. 2002); *see Bonneville Assocs., Ltd. P’ship v. Barram*, 165 F.3d 1360, 1364 (Fed. Cir. 1999). The Board has held, in a precedential decision, that there is no bar after a voluntary dismissal without prejudice, and we see no compelling reason to treat involuntary dismissals differently. *Oracle* at 15–18. Patent Owner identifies no precedent that limits the impact of a dismissal from district-court litigation, as it relates to *inter partes* review proceedings, according to whether the dismissal was voluntary or involuntary. *See, e.g., Graves* at 1355–56 (“The most fundamental problem facing Mr. Graves, however is the fact that, as a matter of law, once his appeal was dismissed—for *whatever purpose* and whether with or without prejudice—it was as if the appeal had never been filed”) (emphasis added). Although the Board has not adopted the Federal Rules of Civil Procedure, their treatment of involuntary dismissals also informs our conclusion because the Ohio district court specifically dismissed Petitioner as a defendant for lack of personal jurisdiction. *See* Fed. R. Civ. Proc. 41(b) (“Unless the dismissal order states otherwise, a dismissal under this subdivision (b) and any dismissal not under this rule—*except one for lack of jurisdiction*, improper venue, or failure to

join a party under Rule 19—operates as an adjudication on the merits” (emphasis added)).

Accordingly, we conclude that Petitioner is deemed not to have been “served with a complaint alleging infringement” of the ’029 patent within the meaning of 35 U.S.C. § 315(b). Consequently, the Petition is not barred on that basis.

2. Real Parties-in-Interest and Privies

The Office Trial Practice Guide (“Practice Guide”) provides guidance on the Board’s approach to identifying real parties-in-interest and privies, referring to common-law preclusion doctrines and citing the Supreme Court decision in *Taylor v. Sturgell*. 77 Fed. Reg. 48,756, 48,759 (Aug. 14, 2012) (citing *Taylor v. Sturgell*, 553 U.S. 880 (2008)). Because nonparty preclusion risks binding those who have not had a full and fair opportunity to litigate, the Supreme Court has cautioned that there is a general rule against nonparty preclusion, subject only to limited exceptions. *See Taylor*, 553 U.S. at 892–93. In *Taylor*, while noting that it was not a “definitive taxonomy” (*id.* at 893 n.6), the Court set forth a list of six “categories” under which nonparty preclusion may be allowed. *Id.* at 893–95. These categories include: (1) whether the third party agrees to be bound by the determination of issues in the proceeding; (2) whether a pre-existing substantive legal relationship with the party named in the proceeding justifies binding the third party; (3) “in certain limited circumstances,” whether the third party is adequately represented by someone with the same interests; (4) whether the

third party exercised or could have exercised control over the proceeding;
(5) whether the third party is bound by a prior decision and is attempting to rehear the matter through a proxy; and (6) whether a statutory scheme forecloses successive hearing by third parties. *Id.*

Patent Owner contends that the relationship between AGLR and MRMC “goes far beyond the usual buyer-seller relationship that has been deemed inadequate to confer privity status in other cases.” PO Resp. 55. Patent Owner summarizes the facts that it argues support a finding of privity, contending that “[w]hen all of these facts are considered, the relationship between and among AGLR, MRMC and MRCG is sufficiently close to justify considering MRMC or MRCG to be a real party-in-interest or privity of AGLR and/or AGLC [i.e., Petitioner].” *Id.* Patent Owner contends that these facts, which it characterizes in a manner favorable to its position, “satisfy at least the first and second ‘Taylor factors’ (third party agrees to be bound and third party had pre-existing substantive legal relationship with the party named in the proceeding).” *Id.* (citation to *Taylor* omitted). We disagree.

First, Patent Owner’s characterization of the facts improperly elevates negotiation discussions of a *potential* agreement to the status of an *actual* agreement in advancing its argument with respect to the *Taylor* “third party agrees to be bound” category. The full language cited by the Supreme Court in *Taylor* leaves no doubt that the Court was referring to the *actual* binding of parties by agreement, not merely to *offers* to be bound that might have

been made as part of failed negotiations: “[A] person who agrees to be bound by the determination of issues in an action between others is bound *in accordance with the terms of his agreement.*” *Taylor* at 893 (*quoting* 1 Restatement (Second) of Judgments (“Restatement”) § 40, p. 390 (1980) (emphasis added)). The record includes insufficient evidence of an actual agreement to be bound to support Patent Owner’s position. Indeed, the record includes an explicit response that no agreement was reached between Petitioner and MRMC or MRCG. *See* Ex. 2033.

Second, Patent Owner places too much weight on the second *Taylor* category (pre-existing substantive legal relationship). “Qualifying relationships include, but are not limited to, preceding and succeeding owners of property, bailee and bailor, and assignee and assignor.” *Id.* (citing 2 Restatement §§ 43–44, 52, 55. Although the Supreme Court acknowledges relationships other than those it specifically identifies may qualify, the relationship between Petitioner and MRMC or MRCG is not as close as those examples, and Patent Owner provides insufficient reasoning to support the extension it implicitly proposes. Patent Owner draws no analogy to any of the other “substantive legal relationships resulting in preclusion” set forth in 2 Restatement §§ 43–61 to support its position or for us to consider.

Accordingly, neither MRMC nor MRCG has been established to be a real party-in-interest in this proceeding, nor have they been established to be privies of Petitioner within the meaning of § 315(b). Whether MRMC was

served more than one year before the instant Petition was filed, thus, is irrelevant to the applicability of the statutory bar to Petitioner. Therefore, we conclude that Petitioner neither has failed to identify all real parties-in-interest as required by § 312(a)(2) nor is barred by § 315(b).

B. Person of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art of gas pressure regulators and vent protectors “would generally have at least a few years of experience with designing, maintaining, or otherwise working with the functional aspects of gas pressure regulators,” and supports its contention with testimony by its expert, James Petersen. Pet. 17 (citing Ex. 1016 ¶ 6). Patent Owner disputes Petitioner’s contention, countering that “[o]ne would need to also have experience with vent protectors themselves and how they interact with gas pressure regulators in order to have ordinary skill in the art of designing vent protectors.” PO Resp. 27. Patent Owner contends instead that the level of ordinary skill in the art “encompasses someone with at least a high school education who has studied gas regulators and their operation, who has studied gas regulator vent protectors and their operation, and who has had personal experience in manufacturing, testing and using gas regulator vent protectors.” *Id.* at 27–28. Patent Owner further contends that “[a]ny person of ordinary skill in the art would have to have studied and worked with gas regulators and gas regulator vent protectors for at least

three years.” *Id.* at 28. Patent Owner supports its contentions with testimony by Mr. Bennett.² Ex. 2087 ¶¶ 12–14.

The significance of the level of ordinary skill in the art is the role it plays in an obviousness analysis. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (“[T]he level of skill in the art is a prism or lens through which a judge, jury, or the Board views the prior art and the claimed invention”); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991) (“The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry”). The differences between the parties regarding the level of ordinary skill in the art are not as great as they might first appear, and the deposition testimony of Mr. Petersen is edifying. Mr. Petersen testified that (1) there is nothing unique about designers of natural gas regulator vent protectors that would distinguish them from those who design natural gas regulators or fuel gas regulators (Ex. 2089, 52:7–17); (2) there was no intent to omit vent protector designers or manufacturers from the definition of one of ordinary skill because “[i]nasmuch as a vent protector is an accessory . . . to a gas

² Petitioner contends that the testimony of Mr. Bennett is unreliable because he is a named inventor on the ’029 patent and because he has a significant financial interest in preserving the validity of the ’029 patent. Reply 2–3 (citing *Bell & Howell Document Mgmt. Prod. Co. v. Altek Sys.*, 132 F.3d 701, 706 (Fed. Cir. 1997); Ex. 1031, 8:14–17, 9:7–19). These factors affect the weight to be accorded to Mr. Bennett’s testimony.

regulator, it would encompass that as well” (*id.*, 53:3–21); and (3) one of skill in the art could have a technician level of engineering education and need not have a degree level of education (*id.*, 55:11–21). We credit this testimony.

In light of these clarifications, we conclude that one of ordinary skill in the art would have at least a technician level of engineering education, and experience with designing, maintaining, or otherwise working with gas pressure regulators and vent protectors.³

C. Claim Construction

The ’029 patent expired on June 16, 2015. *See* PO Resp. 20; Reply 8. The Board construes claims of an expired patent under principles similar to those used during a district court’s review, according claim terms their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention. *See In re CSB-System Int’l*, Case 2015-1832, slip op. *8 (Fed. Cir. Aug. 9, 2016) (“When a patent

³ Patent Owner contends that “Mr. Petersen may be knowledgeable about how gas regulators work, . . . but he does not possess ordinary skill in the art of designing vent protectors for gas regulators.” PO Resp. 28. In light of our determination regarding the level of ordinary skill in the art, we disagree. We note also that Mr. Petersen need not be a person of ordinary skill in the art to testify as an expert under Federal Rule of Evidence 702. *See Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1363–64 (Fed. Cir. 2008). Nor must Mr. Petersen’s qualifications perfectly match the patent at issue. *See SEB S.A. v. Montgomery Ward & Co. Inc.*, 594 F.3d 1360, 1373 (Fed. Cir. 2010).

expires during a reexamination proceeding, the PTO should thereafter apply the *Phillips* standard for claim construction.”); *Cisco Systems, Inc. v. AIP Acquisition, LLC*, Case IPR2014-00247, slip op. at 2 (PTAB July 10, 2014) (Paper 20) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313–1317 (Fed. Cir. 2005) (en banc)). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). There is a presumption, however, that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (internal citation omitted).

In the Institution Decision, we construed certain claim terms in accordance with their broadest reasonable interpretation. Dec. 17–19. In light of expiration of the ’029 patent and development of the full record, we consider construction of the claims anew. Although the Petition appears to apply the broadest reasonable interpretation in advocating for certain constructions, Petitioner remarks that “many of the proposed constructions. . . are consistent with Patent Owner’s claim construction positions and infringement contentions asserted in the Ohio Lawsuit.” Pet. 12. Because the claim-construction standard we apply for expired patents is the same as the standard applied by district courts, Petitioner

presumably understands at least those of its proposed constructions also to be consistent with the claim-construction standard we apply herein.

1. “skirt receiver”

Petitioner proposes that “skirt receiver,” recited in independent claim 1, be construed as “a structure that connects a skirt member or skirt to the vent tube of a gas pressure regulator.” *Id.* at 12–13. Petitioner represents that “[t]his construction is identical to Patent Owner’s proposed construction for the term during litigation.” *Id.* at 13. Although we are not bound by the constructions reached in the district court litigation, we do not disregard them in our determination of the proper construction of this term. *See Power Integrations, Inc. v. Lee*, 797 F.3d 1318, 1326–27 (Fed. Cir. 2015) (Although under certain circumstances the Board may be obligated to evaluate the district court’s construction and to determine whether that construction is consistent with the broadest reasonable construction, “[t]here is no dispute that the board is not generally bound by a prior judicial construction of a claim term.”). Patent Owner does not propose a different construction for the term in this proceeding.

We adopt Petitioner’s proposed construction.

2. “skirt receiver means”

Independent claims 1 and 5 recite a “skirt member” that is “operatively connected to said skirt receiver means.” The “skirt receiver means” is recited positively in claim 5, but it lacks antecedent basis in claim 1, apparently referring to the positively recited “skirt receiver.”

“[U]se of the word ‘means’ creates a presumption that § 112, ¶ 6 applies,” but “[this] presumption[] can be rebutted if the evidence intrinsic to the patent and any relevant extrinsic evidence so warrant.” *Personalized Media Communications, LLC v. International Trade Com’n*, 161 F.3d 696, 703–04 (Fed. Cir. 1998).

Neither claim 1 nor claim 5 recites the “skirt receiver means” in functional terms, and construction without reference to § 112, ¶ 6, is warranted, particularly in light of the inconsistent use of “skirt receiver” and “skirt receiver means” in claim 1. The parties appear to agree that “skirt receiver means” should be construed identically with “skirt receiver,” and we adopt such a construction herein.

3. “skirt member”

Independent claim 1 recites “a skirt member defining an interior space and having an upper end opening connecting said vent tube to said interior space and an outwardly flared lower end with an area substantially greater than the area of said upper end opening, said skirt member being operatively connected to said skirt receiver means.” Independent claim 5 recites “a skirt member defining an interior space, an upper end with an opening adapted to communicate with said vent passage, and an outwardly flared lower end with an opening having an area substantially greater than the area of said upper end opening, said skirt member being operatively connected to said skirt receiver means.” The limitations are similar in these independent claims, although claim 1 recites certain elements as components of the “skirt

member,” while claim 5 recites them as separate elements. This distinction is not essential to our conclusions.

Petitioner proposes a construction that incorporates the separate elements recited in claim 5 as components of the “skirt member,” similar to the manner in which such elements are recited in claim 1, and represents that “Patent Owner contends that the term ‘skirt member’ should be construed as ‘structure that (a) defines an interior space, (b) has an upper end opening connecting a vent tube to the interior space or communicating with a vent passage, (c) has an outwardly flared lower end opening with an area substantially greater than the area of the upper end opening, and (d) is operatively connected to a skirt receiver means.’” Pet. 14. Petitioner asserts that “the Board should adopt Patent Owner’s proposed construction.” *Id.* Patent Owner does not contest the construction. *See* PO Resp. 20.

We adopt this construction herein.

4. “*baffle means*”

Independent claim 1 recites “baffle means located in said interior space to underlie said upper end opening and being spaced from the interior walls of said skirt to permit gas flow therearound.” Independent claim 5 similarly recites “baffle means located in said interior space to underlie said vent passage and being spaced from the interior walls of said skirt to permit gas flow therearound.” Petitioner contends that “baffle means” should be construed under 35 U.S.C. § 112, ¶ 6, as a means-plus-function limitation. *Id.* at 14–15. Patent Owner disagrees because “it is not in the conventional

means-plus-function format and because it sets forth structural limitations, not merely functional limitations.” PO Resp. 23–24. Patent Owner advocates for a construction of “baffle means” as

(a) a baffle or baffle plate positioned in a generally horizontal plane within the interior space of a skirt, (b) the baffle or baffle plate underlying an upper end opening or vent passage in a manner that blocks the splash-back of rain or freezing rain upwardly toward the upper end opening or vent passage, and (c) substantial space being provided between the baffle or baffle plate and the skirt to permit high pressure gas to flow around the baffle or baffle plate and out of the skirt.

Id. at 24–25.

In advocating for a means-plus-function construction, Petitioner asserts that “[t]he recited function of the ‘baffle means’ is to underlie the upper end opening or vent passage and permit gas to flow around the baffle.” Pet. 15. We agree with Patent Owner that these geometrical requirements are structural, rather than functional, and that the claim term is more appropriately construed without reference to 35 U.S.C. § 112, ¶ 6. But Patent Owner’s proposed construction improperly incorporates additional limitations not recited in the claim, such as “*substantial space*” and “to permit *high pressure* gas to flow” (emphases added). We agree with Petitioner that the intrinsic record lacks sufficient support to incorporate such additional limitations. See Reply 10.

We construe “baffle means” as a “baffle plate,” and note that the claims recite specific structural limitations that apply.

5. “*valve means*”

Independent claim 5 recites “valve means for controlling gas flow between said high pressure source and said low pressure line.” Petitioner contends that the claim term “valve means” should be construed in accordance with 35 U.S.C. §112, ¶ 6, with a function of controlling gas flow between the high pressure source and the low pressure line in a gas regulator. Pet. 16. Petitioner further contends that the corresponding structure for this function is “any conventional diaphragm-type gas pressure regulator.” *Id.* (citing Ex. 1009, 8–9). Patent Owner “does not dispute that the phrase in question is a means-plus-function limitation,” but contends that the corresponding structure for the “valve means” is “a high pressure, internally relieved, diaphragm-type gas pressure regulator located outdoors.” PO Resp. 25. Patent Owner provides insufficient basis for the additional restrictions of “high pressure,” “internally relieved,” and “located outdoors” to the identified structure. Such a position also appears to be inconsistent with the position taken by Patent Owner in the Ohio lawsuit under a similar claim-construction standard. *See* Ex. 1009, 8–9. *See Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1351 (Fed. Cir. 2001) (“A patent may not, like a ‘nose of wax,’ be twisted one way to avoid anticipation and another to find infringement.” (quoting *Sterner Lighting, Inc. v. Allied Elec. Supply, Inc.*, 431 F.2d 539, 544 (5th Cir. 1970))).

We construe “valve means” in accordance with 35 U.S.C. §112, ¶ 6, with a function of controlling gas flow between the high pressure source and the low pressure line in a gas regulator, and with corresponding structure of a conventional diaphragm-type gas pressure regulator. *See* Ex. 1001, col. 3, ll. 1–36, Figs. 1–3.

6. *“outlet vent tube,” “vent tube,”
“outlet vent means” and “vent means”*

Independent claim 1 recites a “vent tube” having antecedent basis with a previously recited “outlet vent tube.” Independent claim 5 similarly recites a “vent means” having antecedent basis with a previously recited “outlet vent means.” The parties appear to agree that the “outlet vent means” and “vent means” should not be construed under 35 U.S.C. § 112, ¶ 6, and we agree with that position because the claims do not state sufficient function for those elements and because the claims recite sufficient structure. *See* Pet. 16–17, PO Resp. 21–23. Petitioner contends that such terms should be given their “ordinary meaning.” Pet. 16. Patent Owner advocates for a construction of such terms, as well as “outlet vent tube” and “vent tube” as “a vent tube that has an internal diameter large enough to accommodate the discharge of high pressure gas and that, in use, has a downwardly facing end portion.” PO Resp. 21–23.

Patent Owner’s proposed construction improperly incorporates additional limitations into the claims, namely that the gas discharged via such elements is of “high pressure” and that the structure is oriented with a “downwardly facing end portion.” As Petitioner observes, other known

configurations include an upward facing vent. Reply 10 (citing Ex. 1002, Figs. 4–5).

We construe each of “outlet vent tube,” “vent tube,” “outlet vent means,” and “vent means” as structure that discharges gas.

7. *“diaphragm-type gas pressure regulator” and
“outside gas pressure regulator”*

The preamble of independent claim 1 recites “[a] skirt assembly for reducing ice formation at an outlet vent tube . . . of a diaphragm-type gas pressure regulator.” Patent Owner incorrectly asserts that the phrase “diaphragm-type gas pressure regulator” “is in the preamble of the two independent claims, and thus is a feature of all of the claims.” PO Resp. 21. Independent claim 5 instead recites an “outside gas pressure regulator” as an element of a combination. Petitioner does not propose a construction of either phrase, and Patent Owner advocates for a construction of “diaphragm-type gas pressure regulator” as a “high pressure, internally relieved, diaphragm-type gas pressure regulator located outdoors.” *Id.* at 25. Such a construction improperly incorporates limitations not recited in the claims, namely “high pressure,” “internally relieved,” and “located outdoors.” Moreover, Patent Owner provides insufficient reasoning to support a position that the recitation of a “diaphragm-type gas pressure regulator” in the preamble of claim 1 is limiting. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999) (“If . . . the body of the claim fully and intrinsically sets forth the complete invention, including all of its limitations, and the preamble offers no distinct definition of any of the

claimed invention's limitations, but rather merely states, for example, the purpose or intended use of the invention, then the preamble is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation."'). Therefore, we need not construe "diaphragm-type gas pressure regulator."

Because the "outdoor gas pressure regulator" is recited positively as an element of a combination in claim 5, it is a limiting feature of the claim. We construe the phrase in accordance with its plain and ordinary meaning as a gas pressure regulator that is located outdoors.

8. *"high pressure gas source" and "low pressure gas line"*

Independent claim 5 recites "an outside gas pressure regulator connected between a high pressure gas source and a low pressure gas line." Patent Owner proposes that "high pressure gas source" be construed as "a gas distribution system delivering natural gas to customer connection points at a pressure higher than about 2-3 psi up to about 125 psi," and that "low pressure gas line" be construed as "a gas line having pressures low enough to be used safely by a customer's appliances." PO Resp. 26.

The specific numerical values for "high pressure" proposed by Patent Owner lack support in the Specification of the '029 patent, which instead remarks that "[g]as pressure regulators used in natural gas distribution systems at customer connection points must typically reduce pressure from around 80 psi (used by the gas utility in its distribution system) to around 0.4 psi (used it typical consumer gas lines)." Ex. 1001, col. 1, ll. 13–17. To

support its proposed construction, Patent Owner cites deposition testimony by Petitioner's expert, Mr. Petersen, that "[when] I think of low-pressure distribution systems, I think of pressures around 2 to 3 PSI, which were typical of many of the older systems." Ex. 2089, 110:13–15. Patent Owner also argues that "[o]ne skilled in the art would recognize that the regulator described and illustrated in the '029 patent is a Fisher Model S254, which has a maximum inlet pressure of 125 psi." PO Resp. 26 (citing Ex. 2093, 2); see Ex. 2087 ¶¶ 34, 46.

We are not persuaded that the specific features of the Fisher Model S254 regulator are properly incorporated as limitations of the claims in the absence of specific recitations in the claims themselves. As Petitioner observes, "many of the details Patent Owner cites are found only in the Fisher bulletin and not in the [']029 Patent," and "the [']029 Patent does not refer to, or incorporate the features of, a Fisher S250 series regulator." Reply 6 (citations omitted). At best, even fully crediting Mr. Bennett's testimony that "[t]he gas regulator illustrated in FIGS. 1, 3 and 4 and described in the '029 patent is a Fisher Controls Model S254 high pressure, internally relieved, diaphragm-type natural gas regulator," that specific regulator serves only as a nonlimiting *example* used by the '029 patent. See Ex. 2087 ¶ 34.

Petitioner provides evidence that "[a]s a general matter, all diaphragm-type gas pressure regulators are designed to reduce gas pressure from a relatively higher inlet pressure to a relatively lower output pressure."

Reply 5 (citing Ex. 1016 ¶ 8; Ex 1032, 45:16–25). Patent Owner’s witness, Paul E. Oleksa,⁴ provides testimony consistent with Petitioner’s position that “[t]here is no specific pressure that constitutes ‘high pressure,’ which simply refers to a pressure higher than the output.” *See id.* (citing Ex. 2088 ¶ 33; Ex. 2089, 108:11–22; Ex. 1031, 137:19–138:17; Ex. 1032, 44:9–13). In particular, Mr. Oleksa does not make categorical statements defining “high pressure” in his Declaration, but, rather, asserts: “The pressure in a natural gas distribution system can vary considerably. A low pressure system delivers pressure to the customer’s piping at less than one psi. *A high pressure system delivers pressure at a level higher than the low pressure.*” Ex. 2088 ¶ 33 (emphasis added).

The general variation in the experts’ testimony regarding precise numerical values for “high pressure” and “low pressure” reinforces the conclusion that these are relative terms, as used in claim 5. Accordingly, we

⁴ Patent Owner contends that the testimony of Mr. Oleksa is unreliable because “Mr. Oleksa’s testimony was rejected by a court in a previous case” and because “Mr. Bennett testified that Mr. Oleksa does not have enough experience to be a person of ordinary skill in the art.” Reply 3 (citing Ex. 1032, 29:7–30:4; Ex. 1033, 1; Ex. 1031, 27:4–9). Mr. Oleksa’s testimony was rejected in the prior case because he was not a Certified Fire Investigator for the State of Ohio. Ex. 1032, 29:7–30:4. Patent Owner does not explain the relevance of such a qualification to this proceeding, and identifies no evidence that causes us to question Mr. Oleksa’s honesty or objectivity. We also find that Mr. Oleksa possesses the qualifications of one at least of ordinary skill in the art in light of our determination of that skill level above. *See* Ex. 2088 ¶¶ 3–4, Exs. A, B. Accordingly, we are not persuaded that Mr. Oleksa’s testimony is entitled only to diminished weight.

construe them relative to each other, such that the “high pressure gas source” delivers gas at a pressure higher than a pressure at the “low pressure gas line.”

D. Peterson '087

All of the grounds on which we instituted *inter partes* review rely of Peterson '087, alone or in combination with other art. Figure 2 of Peterson '087 is reproduced below.

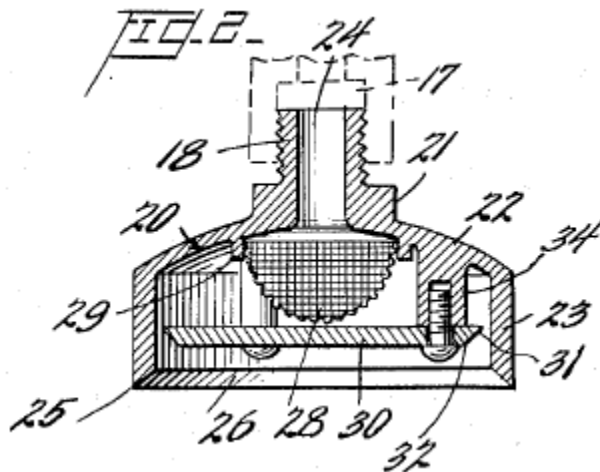


Figure 2 provides a central vertical cross-section of a breather or vent for a gas-service pressure regulator. *Id.* at col. 2, ll. 3–4. Similar to the '029 patent, Peterson '087 notes that such gas-pressure regulators may be installed outdoors and that “[a]s a result[,] such regulators are exposed to all weather and other adverse conditions, and particularly have been troubled with stoppages of the vent passage to the air or back side of the diaphragm resulting from freezes following or occur[ing] during rain or sleet storms or

the like.” *Id.* at col. 2, ll. 17–23. Threaded nipple 18 is connected operatively to the vent tube. *Id.* at col. 2, l. 51–col. 3, l. 13.

1. Claims 1 and 5

a. Anticipation by Peterson ’087

We instituted review of claims 1 and 5 as anticipated by Peterson ’087. Dec. 28. In supporting its challenge on this basis, Petitioner draws a correspondence between the threaded nipple 18 and the “skirt receiver” or “skirt receiver means” recited in independent claim 1, supporting its contention with testimony by Mr. Petersen. Pet. 27–28 (citing Ex. 1016 ¶¶ 21, 23). Petitioner draws a further correspondence between the combination of dome portion 22 and skirt portion 23 of Peterson ’087 with the “skirt member” recited in claim 1. Pet. 28–29 (citing Ex. 1016 ¶ 24). Petitioner contends that such a skirt member “defin[es] an interior space and [has] an upper end opening connecting said vent tube to said interior space and an outwardly flared lower end with an area substantially greater than the area of said upper end opening,” as recited in claim 1.

Petitioner contends that disc 30 corresponds to the recited “baffle means” because it underlies the upper end opening and is spaced from the interior walls of the skirt to permit gas flow therearound. Pet. 29–30 (citing Ex. 1016 ¶¶ 25, 26).

Independent claim 5 recites, in addition to elements that generally correspond to those discussed above with respect to claim 1, a “valve

means,” a “diaphragm housing,” and “a diaphragm,” with certain limitations. Petitioner draws a correspondence between each of these recitations and elements shown in Figure 1 of Peterson ’087, namely between element 13 and the “diaphragm,” between element 16 and the “diaphragm housing,” and between element 12 and the “valve means.” *Id.* at 31–32 (citing Ex. 1016 ¶¶ 29–31).

We agree with Petitioner’s identifications and analysis as they relate to the anticipation ground and, in light of the claim-construction determinations set forth above, adopt them here.

We also have considered Patent Owner’s responses. Certain of Patent Owner’s arguments rely on features that we do not find are required by the claims in accordance with the claim construction set forth above, and those arguments are, therefore, unpersuasive. For example, Patent Owner contends that “[o]ne skilled in the art would understand that outlet vent tube or outlet vents means in claims 1 and 5 would mean a large-diameter outlet that would accommodate the discharge of high pressure gas in the event of an overpressure condition.” PO Resp. 31. Not only are these interpretations unsupported by our claim construction, Patent Owner’s position is belied by the ’029 patent’s disclosure of a “*small* vent opening.” *See* Ex. 1001, col. 1, ll. 43–44, col. 3, ll. 29–30 (emphasis added). Patent Owner also contends that “[o]ne skilled in the art would understand that claims 1 and 5 call for a substantial space between the baffle and the interior walls of the skirt that would permit the flow of high pressure gas as might occur in the event of an

overpressure condition.” PO Resp. 31 (citing Ex. 2087 ¶ 47). But the claims require only that the “baffle means” be “spaced from the interior walls of said skirt,” and Patent Owner acknowledges that Peterson ’087 discloses a 1/16 inch gap between sharpened edge 31 and the interior of the skirt. *See id.* The claims require neither a “substantial” space nor the flow of “high pressure” gas. *See* Reply 13. Relatedly, we are not persuaded by Patent Owner’s contention that “Peterson [’087] makes no mention of discharging gas through the vent passage 15 or relief vent 20.” PO Resp. 31. Petitioner provides evidence that a “relief vent” is understood generally in the art to refer to venting gas, and we credit that evidence. *See* Ex. 1016 ¶ 26; Ex. 1031, 44:1–3; Ex. 1032, 37:17–38:24; Ex. 1036 ¶¶ 17, 19.

Patent Owner also argues that “[c]laim 5 calls for a high pressure gas source[, but] Peterson ’087 contains no disclosure of gas pressure, and therefore does not disclose a high pressure gas source.” PO Resp. 31. Because we find that the pressures associated with the “high pressure gas source” and “low pressure gas line” are relative, for the reasons explained above, we are also not persuaded by this argument.⁵

⁵ Patent Owner also argues that the “same or substantially the same” art was considered during the Office’s reexamination of the ’029 patent in 2002–03. PO Resp. 32. This argument implicates the provisions of 35 U.S.C. § 325(d), which Patent Owner acknowledges it did not raise in its Preliminary Response. Tr. 35:7–9. We do not consider the argument here, as § 325(d) relates to our decision to institute.

We conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1 and 5 are anticipated under 35 U.S.C. § 102(b) by Peterson '087.

b. Obviousness Over Peterson '087 and Peterson '573

We also instituted review of claims 1 and 5 as unpatentable under 35 U.S.C. § 103(a) over Peterson '087 and Peterson '573, which “relates to a safety device for a gas pressure regulator.” Ex. 1004, col. 1, ll. 10–11. Petitioner contends that Peterson '573 “expressly addresses venting gas from the atmospheric pressure chamber of a diaphragm-type gas pressure regulator through a ‘bug-proof vent protector.’” Pet. 33 (citing Ex. 1004, col. 3, ll. 23–34). Petitioner argues that “[i]t would have been obvious to one of ordinary skill in the art at the time of filing the [']029 Patent application that the skirt assembly of the [Peterson] '087 patent would be used in connection with venting gas from a gas pressure regulator.” *Id.* at 33. Petitioner reasons that both Peterson '087 and Peterson '573 “are directed to vent covers for vent tubes of natural gas regulators” and that, in light of Peterson '573’s statement that vent protectors used for venting gas were “of known construction,” the combination would arrive at a predictable result. *Id.* at 33–34 (citing Ex. 1004, col. 3, ll. 25–28). Petitioner further supports its reasoning with testimony by Mr. Peterson. *Id.* at 33 (citing Ex. 1016 ¶¶ 50–52). We are persuaded by Petitioner’s reasoning. The fact that both references are directed to vent covers supports our finding that they are

drawn from analogous arts, and that they achieve a predictable result, thereby supporting a conclusion of obviousness.

Patent Owner responds that “[t]he Petition fails to take into account how one skilled in the art would have understood the prior art in light of the problem to be solved,” presenting a line of reasoning predicated on claim-construction positions we have not adopted, namely by focusing on “high pressure, internally relieved gas regulators.” PO Resp. 39. Because we have not adopted those positions, we do not find Patent Owner’s argument persuasive.

Patent Owner also contends that “[s]econdary considerations of non-obviousness are relevant to the present matter.” *Id.* at 40. In addressing such secondary considerations, Patent Owner asserts “[t]he existence of long-felt but unsatisfied need,” “copying by others,” and “the commercial success that the patented product has attained.” *Id.* Patent Owner presents insufficient evidence on these points that provides a nexus between the merits of the claimed invention and the evidence of secondary considerations. *See Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311–12 (Fed. Cir. 2006). Without citation to evidence in the record, Patent Owner address the nexus requirement as follows:

The secondary considerations of non-obviousness of the patented product arise from features found in the ’029 patent claims. The flared nature of the skirt directs rain, snow and ice away from the vent. The horizontal baffle that underlies the outlet vent prevents freezing rain from splashing back and blocking the vent. The substantial space between the edges of

the baffle and the interior walls of the skirt permit a high pressure, internally relieved regulator to be safely relieved in all icing conditions. The patented device is made of the fewest number of parts to enhance reliability and reduce manufacturing cost and assembly time. The use of a molded plastic material and a threaded connection between the skirt and the vent mean that the device can be manufactured inexpensively and attached to a regulator in the field with minimal effort and little or no technician training.

PO Resp. 42. This conclusory catalog of advantages of the claimed invention does not qualify as “*proof* that the sales were a direct result of the unique characteristics of the claimed invention—as opposed to other economic and commercial factors unrelated to the quality of the patented subject matter.” *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996) (citation omitted) (emphasis added).

We conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1 and 5 would have been obvious over Peterson ’087 and Peterson ’573.

*c. Obviousness of Claims 1 and 5 Over Peterson ’087 and
Prior Art Described in the ’029 Patent*

We further instituted review of claims 1 and 5 as unpatentable under 35 U.S.C. § 103(a) over Peterson ’087 and prior art disclosed in the ’029 patent. Dec. 28. Petitioner contends that the ’029 patent “discloses that diaphragm-type natural gas pressure regulators were known in the natural gas distribution industry, were commonplace, and of a simple design.” Pet. 39–40. We agree with Petitioner that claim 1 is not limited to a gas pressure

regulator with particular elements, and that “[t]he conventional gas pressure regulator admitted as prior art by the inventors [of the ’029 patent] has all of the elements of the gas pressure regulator recited in claim 5.” *Id.* at 40. We further agree with Petitioner’s reasoning for combining this teaching with those of the ’087 patent because “[u]sing the gas regulator of the [prior art disclosed in the ’029 patent] with the skirt assembly of the ’087 Patent is merely combining two known devices in known ways to achieve a predictable result.” *Id.* This analysis and reasoning is supported by testimony by Mr. Petersen, which we credit. *See* Ex. 1016 ¶¶ 12–16, 27, 29–31.

Patent Owner responds that “[t]here is nothing in the [prior art described in the ’029 patent] that teaches or suggests that vent protection for any type of gas regulator is necessary or desirable,” and that “[t]here is nothing in [the prior art described in the ’029 patent] that would have led one skilled in the art to produce the claimed vent protector which requires a baffle-skirt gap sufficient to enable high pressure gas to be vented.” PO Resp. 52. We are not persuaded by these responses because they attack the prior art described in the ’029 patent for lacking features that Petitioner relies on as disclosed by Peterson ’087, and because they do not sufficiently address the combination of teachings. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981). Patent Owner refers to other arguments it makes in connection with the combination of Peterson ’087 and Peterson ’573, which we address above. *See* PO Resp. 52 (“Bennett has addressed these questions

already in Section VI(G), *supra*, and incorporates those remarks herein by reference.”).

We conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1 and 5 would have been obvious over Peterson ’087 and prior art described in the ’029 patent.

2. *Claims 2 and 6*

Claims 2 and 6 depend from independent claims 1 and 5, respectively, and recite that “said skirt member is formed of a molded plastic material.” We instituted review of those claims on three bases: (1) obviousness over Peterson ’087 and Ferguson; (2) obviousness over Peterson ’087, Peterson ’573, and Ferguson; and (3) obviousness over Peterson ’087, the prior art described in the ’029 patent, and Ferguson. Dec. 28. Essentially, these grounds correspond to the three grounds discussed above for claims 1 and 5, with the addition of Ferguson to address the additional limitation of claims 2 and 6.

Petitioner contends that, although Peterson ’087 “is silent as to the material for the skirt member,” Ferguson “expressly teaches that vent covers used to protect a vent tube should be made of molded plastic material.” Pet. 34–35. Ferguson “pertains to vent covers for gas pressure regulators.” Ex. 1005, col. 1, ll. 5–6. Ferguson teaches that “all of the components of the vent cover, including the cap, are formed of a synthetic plastic material which is noncorrodable and not adversely affected by weather conditions.” *Id.* at col. 5, ll. 13–16. Petitioner asserts that one of ordinary skill in the art

would have reason to combine this teaching with the teachings of Peterson '087 because both references “are directed at vent covers for vent tubes of natural gas regulators” and “address the problem of protecting the vent tube from inclement weather.” Pet. 35 (citing Ex. 1016 ¶ 57). Petitioner applies this reasoning not only in the context of combining Ferguson with Peterson '087 alone, but also in the context of combining Ferguson with both Peterson '087 and Peterson '573, or with Peterson '087 and the prior art described in the '029 patent. *Id.* at 34–36, 37, 41. We agree with Petitioner’s reasoning.

Patent Owner responds that “[n]either Peterson '087 nor Ferguson teach[es] or suggest[s] a vent protector or gas regulator such as that set forth in claims 1 and 5,” and “[a]ccordingly, even if it were obvious to make the Peterson '087 vent protector from a plastic material as disclosed by Ferguson . . . , the combination still would not produce the invention of claims [2 and 6].” PO Resp. 44. Patent Owner provides similar responses in the context of the combinations that also involve Peterson '573 or the prior art described in the '029 patent. *Id.* at 46, 53. We are not persuaded by these responses because Petitioner does not rely on Ferguson for the limitations recited in independent claims 1 and 5, from which claims 2 and 6 respectively depend, and because we conclude, for the reasons expressed above, that Petitioner has demonstrated that those underlying independent claims are unpatentable.

Patent Owner also contends that the vent cover of Ferguson is shown in a downwardly facing position and that “[i]f one were to change the orientation of the Ferguson device, the device not only would not work but it might also cause a fire or explosion.” *Id.* at 43. Such a consideration is not relevant to the combinations applied by Petitioner because of the limited manner in which Petitioner applies Ferguson, and in light of our construction of “outlet vent tube,” “vent tube,” “outlet vent means,” and “vent means.”

We conclude that Petitioner has demonstrated by a preponderance of the evidence that: (1) claims 2 and 6 would have been obvious over Peterson ’087 and Ferguson; (2) claims 2 and 6 would have been obvious over Peterson ’087, Peterson ’573, and Ferguson; and (3) claims 2 and 6 would have been obvious over Peterson ’087, the prior art described in the ’029 patent, and Ferguson.

3. Claims 3 and 7

Claims 3 and 7 depend respectively from claims 2 and 6, and recite that “said molded material is an electrically conductive plastic.” We instituted review of those claims on three bases: (1) obviousness over Peterson ’087, Ferguson, and Ohmae; (2) obviousness over Peterson ’087, Peterson ’573, Ferguson, and Ohmae; and (3) obviousness over Peterson ’087, the prior art described in the ’029 patent, Ferguson, and Ohmae. Dec. 28. Essentially, these grounds correspond to the three grounds discussed above for claims 2 and 6, with the addition of Ohmae to address the additional limitation of claims 3 and 7.

Ohmae “relates to an electrically conductive plastic molding using an ethylene copolymer and a process for producing the same.” Ex. 1006, col. 1, ll. 7–9. Petitioner contends that one of ordinary skill in the art would have reason to combine Ohmae’s teaching with the teachings of Peterson ’087 and Ferguson because such a person “would understand the benefits of an antistatic material as the molded plastic for the skirt assembly, including reducing the likelihood of fire and explosions.” Pet. 38 (citing Ex. 1016 ¶ 63). Petitioner applies this reasoning not only in the context of combining Ohmae with Peterson ’087 and Ferguson alone, also in the context of further combination with Peterson ’573 or the prior art described in the ’029 patent. Pet. 39, 42. We agree with Petitioner’s reasoning.

Patent Owner responds that Petitioner

does not provide a reason why one skilled in the art would want to use an antistatic material other than to conclude that “one skilled in the art would understand the benefits of an antistatic material as the molded plastic for the skirt assembly, including reducing the likelihood of fire and explosions.”

PO Resp. 48 (quoting Pet. 38); *see id.* at 49–50 (referring to other analyses in the Patent Owner Response). Patent Owner contends that “[t]he way [Petitioner] handled the Ohmae reference reeks of impermissible hindsight analysis” because the reference was provided to Mr. Petersen by Petitioner’s counsel and because Mr. Petersen failed “to determine the properties of the Ohmae material [such as elasticity modulus, shear modulus, tensile strength, and breakage resistance] prior to rendering his opinion.” *Id.* We are not

persuaded by this contention. “Any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant’s disclosure, such a reconstruction is proper.” *In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971). Mr. Bennett testified that, at the time of invention, “static electricity was a big issue,” but that concern has since “faded away,” confirming that there was industry motivation to use antistatic material. Ex. 1037, 57:5–22. The other properties of the material described by Ohmae are not recited in the claims; what is relevant is that Ohmae discloses electrically conductive plastic molding usable “in a broad range of application[s],” including antistatic materials. Ex. 1006, col. 1, ll. 16–41.

Patent Owner also impugns Petitioner’s reliance on the testimony of Mr. Petersen to support its rationale for combining Ohmae with the other references because “it must be remembered that Mr. Petersen is not one of ordinary skill in the art of designing vent protectors.” PO Resp. 48; *see id.* at 49–50 (referring to other analyses in the Patent Owner Response). As noted above, we disagree with this assertion in light of our conclusion regarding the level of ordinary skill in the art. *See supra*, n.3.

We conclude that Petitioner has demonstrated by a preponderance of the evidence that: (1) claims 3 and 7 would have been obvious over Peterson ’087, Ferguson, and Ohmae; (2) claims 3 and 7 would have been

obvious over Peterson '087, Peterson '573, Ferguson, and Ohmae; and (3) claims 3 and 7 would have been obvious over Peterson '087, the prior art described in the '029 patent, Ferguson, and Ohmae.

4. Claims 4 and 8

Claims 4 and 8 depend respectively from independent claims 1 and 5, and recite “further including a screen element covering said lower end opening.” We instituted review of those claims on three bases: (1) obviousness over Peterson '087 and Ferguson; (2) obviousness over Peterson '087, Peterson '573, and Ferguson; and (3) obviousness over Peterson '087, the prior art described in the '029 patent, and Ferguson. Dec. 28. Essentially, these grounds correspond to the three grounds discussed above for claims 1 and 5, with the addition of Ferguson to address the additional limitation of claims 4 and 8.

Ferguson discloses that “vent cover 34 includes . . . vent opening 38, and . . . screen 40 is located within the cover adjacent the vent opening whereby vented gas passes through the screen, and the screen prevents insects and debris from entering the neck.” Ex. 1005, col. 3, ll. 41–46. In addition, Peterson '087 discloses an optional screen as a defense to insects, dirt, and leaves, but positions such a screen near the upper end of the skirt assembly, rather than the lower end. Ex. 1001, col. 3, ll. 58–62. Petitioner reasons that, because one of ordinary skill in the art would have reason to combine the teachings of Peterson '087 and Ferguson, each of which “address[es] the problem of protecting the vent tube from inclement

weather,” it “would have been obvious to try the screen at the lower end of the skirt assembly.” Pet. 36 (citing Ex. 1016 ¶¶ 59–60). Petitioner applies this reasoning not only in the context of combining Ferguson with Peterson ’087 alone, but also in the context of combining Ferguson with both Peterson ’087 and Peterson ’573, or with Peterson ’087 and the prior art described in the ’029 patent. *Id.* at 34–36, 37, 41. We agree with Petitioner’s reasoning, and note that the Supreme Court has approved of “obvious to try” rationales for the combination of the teachings of applied references under appropriate circumstances:

The same constricted analysis led the Court of Appeals to conclude, in error, that a patent claim cannot be proved obvious merely by showing that the combination of elements was “[o]bvious to try.” When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

KSR International Co. v. Teleflex Inc., 550 U.S. 398, 421 (2007).

Patent Owner responds that “[Petitioner’s] contention is illogical because Peterson ’087 discloses an internal screen and would not need another.” PO Resp. 44; *see id.* at 46, 53 (referring to other analyses in the Patent Owner Response). “Even if the internal screen were removed,” Patent Owner contends, “the addition of a screen at the lower end of the Peterson ’087 skirt would obviate the need for the 1/16 inch baffle-skirt

spacing to exclude insects that was the reason the Peterson '087 invention was created in the first place.” *Id.* at 44–45. Patent Owner adds that Mr. Petersen testified that adding a screen to the lower end opening “could cause icing problems,” which “is some evidence that it would not have been obvious to place a screen at the lower end opening.” *Id.* at 45 (citing Ex. 2089, 44:22–45:8); *see id.* at 46, 53 (referring to other analyses in the Patent Owner Response). Although these are factors we consider, we are not persuaded that they effectively rebut Petitioner’s contention that it would have been obvious to try an alternative location for the screen.

We conclude that Petitioner has demonstrated, by a preponderance of the evidence that: (1) claims 4 and 8 would have been obvious over Peterson '087 and Ferguson; (2) claims 4 and 8 would have been obvious over Peterson '087, Peterson '573, and Ferguson; and (3) claims 4 and 8 would have been obvious over Peterson '087, the prior art described in the '029 patent, and Ferguson.

III. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, based on a preponderance of the evidence, claims 1–8 of U.S. Patent No. 5,810,209 are held to be unpatentable;

FURTHER ORDERED that, because this is a final written decision, parties to this proceeding seeking judicial review of our decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2015-00826
Patent 5,810,029

PETITIONER

Holmes Hawkins
hhawkins@kslaw.com

Russell Blythe
rblythe@kslaw.com

PATENT OWNER

Wayne Porter
porter@porterpatentlaw.com