

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNITED INDUSTRIES CORPORATION,
Petitioner,

v.

SUSAN McKNIGHT, INC.,
Patent Owner.

Case IPR2017-01686
Patent 9,253,973 B2

Before JAMES A. TARTAL, TIMOTHY J. GOODSON, and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

TARTAL, *Administrative Patent Judge*.

FINAL WRITTEN DECISION AND
ORDER DENYING MOTION TO AMEND
Inter Partes Review

35 U.S.C. §§ 316(d), 318(a) and 37 C.F.R. §§ 42.73, 42.121

I. INTRODUCTION

United Industries Corporation (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting institution of *inter partes* review of claims 1–17 of U.S. Patent No. 9,253,973 B2 (Ex. 1001, “the ’973 patent”) owned by Susan McKnight, Inc. (“Patent Owner”). We have jurisdiction under 35 U.S.C. § 6(c) to hear this *inter partes* review instituted pursuant to 35 U.S.C. § 314. In this Final Written Decision, issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73, we find on the record before us that Petitioner has shown by a preponderance of the evidence that claims 1–17 of the ’973 patent are unpatentable. *See* 35 U.S.C. § 316(e). Further, Patent Owner’s Motion to Amend, which it filed “in an abundance of caution,” is denied as unnecessary and nonresponsive because we adopt the proposed claim construction for existing claims 1 and 16 that Patent Owner sought to make explicit through proposed amended claims.

A. PROCEDURAL HISTORY

Petitioner filed a Petition requesting institution of *inter partes* review of claims 1–17 of the ’973 patent on six grounds of alleged unpatentability. Pet. 3–4. Patent Owner filed a Preliminary Response (Paper 6, “Prelim. Resp.”). We initially instituted review of all challenged claims because we determined the Petition showed a reasonable likelihood that Petitioner would prevail as to the challenged claims on the following four grounds:

References	Basis	Claims Challenged
Jennerich, ¹ Lyng, ² and Jennings ³	§ 103	1–17
Anderson, ⁴ Dempster, ⁵ and Lang ⁶	§ 103	1–3, 7, 10, 14, 16, and 17
Anderson, Dempster, Lang, and Lyng	§ 103	4–6, 10, 11, 14, and 15
Anderson, Dempster, Lang, and Metcalfe ⁷	§ 103	8, 9, 12, and 13

Paper 7 (“Inst. Dec.”); *see also* 35 U.S.C. § 314.

After institution of *inter partes* review, Patent Owner filed a Response to the four grounds instituted. Paper 15 (“PO Resp.”). Patent Owner also filed a Motion to Amend contingent on a finding of unpatentability as to either claim 1 or claim 16. Paper 16 (“Mot. Amend”).

Subsequent to the Patent Owner Response, the Supreme Court held in *SAS Institute Inc. v. Iancu* that a decision to institute under 35 U.S.C. § 314 may not institute on fewer than all claims challenged in the petition. 138 S. Ct. 1348, 1359–60 (2018). In light of the Guidance on the Impact of SAS on

¹ U.S. Patent No. 2,167,978, issued August 1, 1939 (Ex. 1002, “Jennerich”) (citations to Jennerich are to the first or second page of text, then the first or second column of text on that page, followed by the line numbers).

² U.S. Patent App. No. 2005/0138858 A1, published June 30, 2005 (Ex. 1007, “Lyng”).

³ U.S. Patent No. 400,460, issued April 2, 1889 (Ex. 1006, “Jennings”) (citations to Jennings are to the page number and line number).

⁴ U.S. Patent No. 5,996,531, issued December 7, 1999 (Ex. 1003, “Anderson”).

⁵ U.S. Patent No. 1,024,767, issued April 30, 1912 (Ex. 1024, “Dempster”) (citations to Dempster are to the page number and line number).

⁶ U.S. Patent App. No. 2007/0044372 A1, published March 1, 2007 (Ex. 1008, “Lang”).

⁷ U.S. Patent No. 7,299,587 B1, issued Nov. 27, 2007 (Ex. 1012, “Metcalfe”).

AIA Trial Proceedings⁸ issued by the Office, which states that “if the PTAB institutes a trial, the PTAB will institute on all challenges raised in the petition,” we modified the Institution Decision to include review of all challenged claims on all grounds asserted in the Petition. Paper 17, 2. In particular, we further instituted review on the following claims and bases asserted in the Petition:

References	Basis	Claims Challenged
Denton, ⁹ Jennerich, and McKnight ’812 ¹⁰	§ 103	1–17
McGrath ¹¹ and Lyng	§ 103	1–7, 10, 11, and 14–17

Id. at 3–4. We also authorized Patent Owner to file supplemental briefing in response to the additional instituted grounds. Paper 18, 2–3.

Patent Owner filed a Supplemental Patent Owner Response to address grounds not addressed in the Patent Owner Response. Paper 19 (“PO Supp. Resp.”). Petitioner filed an Opposition to the Motion to Amend (Paper 22, “Opp. Mot. Amend) and a Reply addressing all six grounds instituted (Paper 23 (“Pet. Reply”)). Patent Owner filed a Surreply. Paper 25 (“PO Surreply”). Oral argument was held before the Board on October 18, 2018. Paper 33 (“Tr.”).

⁸ Available at <https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial>.

⁹ U.S. Patent No. 223,321, issued January 6, 1880 (Ex. 1004, “Denton”) (citations to Denton are to the page number and line number).

¹⁰ U.S. Patent No. 8,966,812 B2, issued March 3, 2015 (Ex. 1013, “McKnight ’812”).

¹¹ U.S. Design Patent No. 335,940, issued May 25, 1993) (Ex. 1005, “McGrath”).

B. RELATED MATTERS

The parties indicate that the '973 patent was asserted in a case captioned *Susan McKnight, Inc. v. United Industries Corp.*, No. 2:16-cv-02534-JPM-tmp (W.D. Tenn.). Pet. 1; Paper 4, 2. According to Petitioner, that proceeding was transferred to the Eastern District of Missouri, captioned *Susan McKnight, Inc. v. United Industries Corp.*, No. 4:18-cv-00338-RLW (E.D. Mo.), and stayed pending resolution of this *inter partes* review and the *inter partes* review of related U.S. Patent No. 9,066,511 B2 challenged by Petitioner in IPR2017-01687. Paper 14, 3.

C. REAL PARTIES IN INTEREST

Petitioner identifies United Industries Corporation and Spectrum Brands, Inc. as real parties in interest. Pet. 1. Patent Owner identifies itself and Purdue Research Foundation as real parties in interest. Paper 4, 2; Paper 14, 2–3.

II. BACKGROUND

The '973 patent, titled “Crawling Arthropod Intercepting Device and Method,” issued February 9, 2016, from U.S. Application No. 12/387,645, filed May 5, 2009. Ex. 1001. As background information for the '973 patent, below we provide a summary of the patent, discuss the prosecution history, and provide an illustrative claim. We also identify the proffered witness testimony.

A. SUMMARY OF THE '973 PATENT

The '973 patent generally relates to a device to intercept crawling arthropods and other crawling pests that includes “pitfall trap surfaces that form multiple pitfall traps.” *Id.* at Abstract. In one embodiment, “an intercepting device comprising an exterior, upstanding climbable surface

that crawling arthropods . . . can climb and first and second pitfall traps disposed inwardly of the climbable exterior surface for trapping crawling arthropods.” *Id.* at 3:43–47. “[T]he first pitfall trap comprises an inner receptacle that receives a leg of furniture or other object and the second pitfall trap comprises an outer receptacle.” *Id.* at 3:47–50. “[C]rawling arthropods are trapped in the inner receptacle and/or outer receptacle as a result of being unable to climb out, preventing crawling arthropods from moving between the furniture (or other object) and the floor.” *Id.* at 3:50–53.

Figure 1a of the ’973 patent is reproduced below:

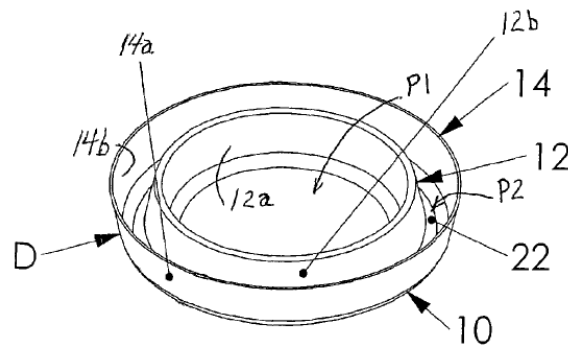


Fig. 1a

Figure 1a illustrates a perspective view of one-piece intercepting device D with first pitfall trap P1 and second pitfall trap P2. *Id.* at 4:12–14, 4:48–55. Patent Owner explains that “[t]he exterior climbable surface 14a has a surface texture rough enough to be readily climbable by crawling arthropods” (Prelim. Resp. 2–3 (citing Ex. 1001, 5:23–26)), and “surfaces 12a, 12b, 14b are slippery so that crawling arthropods cannot climb or have difficulty climbing the surfaces thereby trapping the arthropods in either receptacle.” *Id.* (citing Ex. 1001, 5:34–48). “Humans are effectively acting as bait for a trap.” Ex. 1001, 4:3–4. According to Patent Owner, a novel feature of the device is that it discriminates between bed bugs approaching

and departing the bed, sofa, or other object and serves “to monitor the efficacy of extermination efforts.” Prelim. Resp. 2 (quoting Ex. 1001, 4:1); *see also* Tr. 31:15–23.

B. PROSECUTION HISTORY OF THE '973 PATENT

As explained by Petitioner, during prosecution of the '973 patent the Examiner issued a Final Office Action rejecting all pending claims over applied prior art that included Jennerich, a reference asserted in this case. Pet. 10 (citing Ex 1017). The Applicant appealed the rejection and in an *ex parte* proceeding the Board affirmed the rejection as to all claims, including the rejections based on anticipation by and obviousness over Jennerich. *Id.* at 11–13; *see also* Ex. 1018, 11. The Applicant filed a request for continued examination and amended the claims “by adding that: (a) the first and second pitfall traps were ‘bait-free’; and (b) the interior surfaces of the first and second pitfall traps were ‘slippery to prevent bed bugs from climbing out.’” *Id.* at 14 (quoting Ex. 1019, 2).

Subsequently, the Examiner found that the newly added limitations were taught by Jennerich and proposed an amendment, stating in an Examiner-Initiated Interview Summary:

Examiner proposed amending claims 1 and 32 to recite that the inner receptacle upstanding peripheral surface and the outer receptacle inner and outer peripheral surfaces as each having a surface roughness which is slippery to prevent bed bugs from climbing out to define over Jennerich where the presence of powder (h) provides the slippery surfaces rather than the surface roughness of the present invention which is achieved through a hard surface finish of high density polypropylene or polypropylene with a roughness average (Ra) of 100 microinch (2.54 micron) or less, smooth glass or polished metal as disclosed in paragraphs 0028 and 0042 of the present specification. Applicant agreed with the proposed amendments.

Pet. 14 (quoting Ex. 1020, 2). With the Applicant's authorization, the Examiner issued an Examiner's Amendment of the claims and, without further explanation, a Notice of Allowance. Pet. 14–15 (citing Ex. 1021).

Petitioner contends that:

[i]n allowing the claims, the Examiner abandoned without explanation his earlier reasoning in the 2012 Final Office Action—which the Board affirmed—that it would have been obvious for a person of ordinary skill to ‘design the surface roughness of the slippery surfaces of the inner and outer peripheral surfaces so as to prevent the targeted insects from escaping the confines of the trap.’

Pet. 14–15 (citing Ex. 017, 9; Ex. 1018, 9).

C. ILLUSTRATIVE CLAIM OF THE '973 PATENT

Claims 1 and 16 of the '973 patent are independent and claims 2–15 and 17 depend from claim 1. Claim 1 is illustrative of the claimed subject matter and is reproduced below, with emphasis provided on the language added over the prior version of the claim that was rejected:

1. A bed bug intercepting device for placement under a support leg of furniture or other object toward or from which bed bugs travel, comprising

an upstanding, exterior climbable surface that bed bugs can climb and first and second pitfall traps disposed inwardly of the climbable exterior surface for trapping bed bugs,

wherein the first pitfall trap comprises a *bait-free* inner, support-leg receiving receptacle for receiving the support leg of furniture or other object

wherein the inner receptacle is bounded by an upstanding peripheral surface that has a surface roughness which is slippery to prevent bed bugs from climbing out and

the second pitfall trap comprises a bait-free outer receptacle wherein the outer receptacle includes upstanding inner and outer peripheral surfaces that form the outer receptacle

therebetween and that each have a surface roughness which is slippery to prevent bed bugs from climbing out,

wherein bed bugs are trapped in the inner receptacle or outer receptacle as a result of being unable to climb out and

wherein the inner receptacle includes a bottom surface on which the support leg is received such that bed bugs traveling from the furniture or other object are trapped in the inner receptacle and bed bugs traveling toward the furniture or other object are trapped in the outer receptacle.

Ex. 1001, 11:18–39 (additional indentations and emphasis added);

Ex. 1018, 2.

D. PROFFERED WITNESS DECLARATIONS

Petitioner supports its Petition with the Declaration of George Rotramel, PhD., dated June 27, 2017. Ex. 1022. Dr. Rotramel states that he received a Doctorate in Entomology in 1971 and has been “an independent consultant in matters relating to pests and pesticides since 1988.” *Id.*

¶¶ 3–4.

Patent Owner supports its Response with the Declaration of Louis N. Sorkin, B.C.E., dated October 25, 2017. Ex. 2001. Mr. Sorkin indicates that he received a Masters of Science in Entomology in 1978 and is a Senior Scientific Assistant in the Department of Entomology at the American Museum of Natural History. *Id.* at 17, 43. Patent Owner also supports its Response with the Declaration of Susan McKnight, dated October 25, 2017. Ex. 2003. Ms. McKnight states that she is the sole owner of Patent Owner. *Id.* ¶ 3.

III. ANALYSIS

In our analysis of Petitioner’s unpatentability contentions with respect to claims 1–17 of the ’973 patent, we next address the applicable principles of law; the level of ordinary skill in the art; the construction of the claim

terms “slippery” and “climbing out”; the scope and content of the asserted prior art; and then further analyze each alleged ground of unpatentability.

A. PRINCIPLES OF LAW

To prevail in its challenge to the patentability of claims 1–17 of the ’973 patent, Petitioner must prove unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review).

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)¹²; *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142 (2016) (upholding the use of the broadest reasonable interpretation standard). In determining the broadest

¹² Although the claim construction standard applied in *inter partes* review was recently changed to the federal court claim construction standard used in a civil action under 35 U.S.C. § 282(b), that change does not apply to this proceeding because the Petition was filed before November 13, 2018, the effective date of the change. *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,344 (Oct. 11, 2018).

reasonable construction, we presume that claim terms carry their ordinary and customary meaning. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). A patentee may define a claim term in a manner that differs from its ordinary meaning; however, any special definitions must be set forth in the specification with reasonable clarity, deliberateness, and precision. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

A patent claim is unpatentable as obvious if “the differences between” the claimed subject matter “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). An invention “composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Rather, “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *Id.*

An obviousness determination “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.* (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)); *see In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966).

B. LEVEL OF ORDINARY SKILL IN THE ART

In determining whether an invention would have been obvious at the time it was made, 35 U.S.C. § 103 requires us to resolve the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. “The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field. *Id.* In a given case, one or more factors may predominate. *Id.* Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovation Toys, LLC v. MGA Entm’t, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) (“A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.”).

Petitioner contends that a person of ordinary skill in the art at the time of the claimed invention would have had “knowledge of the history and literature concerning insect control devices, particularly as used for bed bug monitoring and trapping” and would have possessed either:

- (i) a bachelor’s or higher level degree in entomology or similar field and three or more years of experience working with bed bugs in a laboratory setting or working with bed bugs and bed bug traps in the field; or (ii) without a bachelor’s level degree in entomology or similar field, seven years of experience in a

laboratory setting or in the field working with bed bugs and bed bug traps.

Pet. 18 (citing Ex. 1022 ¶ 15). Patent Owner does not contest Petitioner's asserted level of ordinary skill in the art. PO Resp. 11.

Based on the evidence provided, including the prior art of record, we agree with Petitioner's proposed level of ordinary skill and also find that the prior art of record further reflects the level of ordinary skill in the art. *See also Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (noting that the prior art of record may reflect the level of ordinary skill in the art).

C. CLAIM CONSTRUCTION

1. "slippery"

Claims 1 and 16 each recite receptacles with surfaces that have "a surface roughness which is slippery to prevent bed bugs from climbing out." Ex. 1001, 11:25–32, 12:33–42. Petitioner contends that "slippery" is indefinite, but argues that because the issue of indefiniteness cannot be raised in this case, it should be construed to mean "smooth."¹³ Pet. 16–17 (citing Ex. 1001, 5:41–45).

With respect to the meaning of "slippery," the '973 patent states:

The slippery surfaces can have the appropriate low friction as result of being made of a slippery material, such as polymer, glass, or polished metallic material having a relatively low coefficient of friction and/or by providing a friction-reducing

¹³ Indefiniteness is not among the types of challenges on which an *inter partes* review can be instituted, therefore, we do not resolve the issue of whether "slippery" is indefinite. *See* 35 U.S.C. § 311(b) (providing that *inter partes* review is available "only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications"). Nevertheless, we consider whether the claims have been shown to be obvious over the asserted references based on our interpretation of what "slippery" encompasses at a minimum.

(lubricating) substance thereon to this end. For purposes of illustration, the surfaces 12a, 12b and 14b have a molded or polished surface roughness Ra of about 100 microinches or less to this end.

...

The surface of the capture moat is to be smooth enough that no traction is provided for the bed bugs to engage their hooked tarsal claws on surface irregularities. A hard surface finish of high density polypropylene or polypropylene with a roughness average (Ra) of 100 microinch (2.54 micron) or less, smooth glass or polished metal does not provide traction for the bed bugs.

Ex. 1001, 5:41–48, 7:63–8:2. Additionally, in discussing the Background of the Invention, the '973 patent makes clear that it was known in the art how to create the slippery interior surface of a pitfall trap, stating:

Smooth, hard surface of pitfall interior surface can be created from glass, ceramics, metals, finish treatments on polished wood, finish treatments on paper, and plastics. The surface roughness (Ra) of an optical grade mirror finish is 0 to 0.5 microinch (0.0127 micron), of a satin finish is 50 to 60 microinch (1.27 to 1.524 micron), and of an embossed or coarsely textured product is up to 300 microinch (7.62 micron).

Id. at 2:34–41 (citation omitted).

Patent Owner contends that “slippery” is not indefinite and that Petitioner’s proposed construction of “smooth” is incomplete, over-inclusive, overly broad, and not in conformance with the patent specification. PO Resp. 12–13. According to Patent Owner, “slippery” means either “low friction so that crawling arthropods cannot climb or have difficulty climbing the surface,” or “smooth enough that no traction is provided for the bed bugs to engage their hooked tarsal claws on surface irregularities.” *Id.* at 12.

We explained in the Institution Decision that Petitioner may establish obviousness under its proposed analysis based on prior art that teaches low

friction surfaces that crawling arthropods cannot climb or have difficulty climbing because such a surface is encompassed by the claimed “surface that has a surface roughness which is slippery to prevent bed bugs from climbing out.” Patent Owner concedes our interpretation is appropriate for this case, and we adopt it unchanged for purposes of this Decision. *See* Inst. Dec. 10; PO Resp. 13–14.

2. “*climbing out*”

Claim 1 recites an “outer receptacle” with surfaces that are “slippery to prevent bed bugs from climbing out.” Ex. 1001, 11:29–33; *see also id.* at 12:37–43 (claim 16 recites an outer receptacle with surfaces that are “slippery to prevent bed bugs in the outer receptacle from climbing out”). Patent Owner contends that “climbing out” means “climbing out of the outer receptacle,” as opposed to being prevented from climbing out of the intercepting device generally. PO Resp. 15. According to Patent Owner, this construction is consistent with the specification, which describes multiple pitfall traps. *Id.* at 16 (citing Ex. 1001, 4:42–47, Abstract).

In Reply, Petitioner states that Patent Owner’s proposed construction is unnecessary because claim 1 expressly recites “wherein bed bugs are trapped in the inner receptacle or outer receptacle as a result of being unable to climb out.” Pet. Reply 2–3 (quoting Ex. 1001, 11:33–35). Thus, Petitioner agrees with Patent Owner that “the references to ‘climbing out’ in the preceding limitations refer to ‘climbing out’ of the ‘inner receptacle’ and ‘outer receptacle.’” *Id.* at 3; *see also* Tr. 14:5–24 (Petitioner indicating it agrees with Patent Owner’s construction of “climbing out” as referring to climbing out of the receptacle). Accordingly, we adopt Patent Owner’s undisputed contention that “slippery to prevent bed bugs in the outer

receptacle from climbing out” means “slippery to prevent bed bugs in the outer receptacle from climbing out of the outer receptacle.”

D. SCOPE AND CONTENT OF THE PRIOR ART

To demonstrate the unpatentability of the challenged claims of the '973 patent, Petitioner relies on Jennerich, Lyng, Jennings, Anderson, Dempster, Lang, Metcalfe, Denton, McKnight '812, and McGrath, each of which is briefly summarized below.

1. *Summary of Jennerich*

Jennerich, titled “Insect Trap,” generally relates to “traps for house and kitchen vermin, more particularly of insects such as cockroaches, blackbeetles and other beetles, the legs of which are provided with cupules or cleaving balls.” Ex.1002, p. 1, 1:1–5. The trap described by Jennerich “is intended for use in connection with certain powdery preparations, which may be styled paralyzing powders, which render the cupules and cleaving balls of insect legs ineffective.” *Id.* at p. 1, 1:43–47.

Figure 1 of Jennerich is reproduced below.

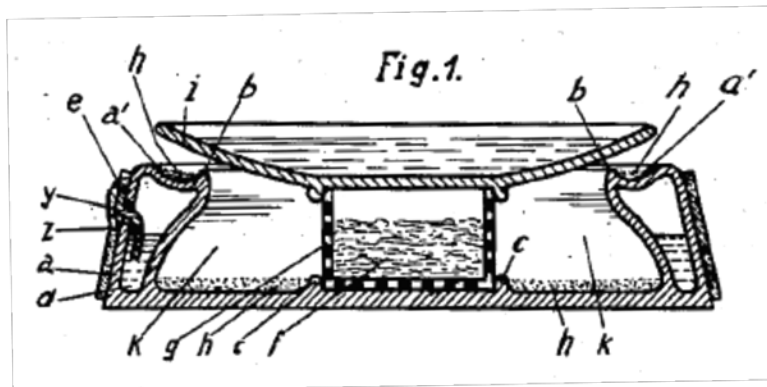


Figure 1 illustrates a cross-sectional view of an embodiment of the trap described by Jennerich. Ex. 1002, p.1, 2:6–8.

The trap shown in Figure 1 “consists of a basin made for instance of earthenware with slanting and, if desired, roughened outer walls *a*, from

which a smoothly inclined surface *a'* and a rounded glazed portion *b* leads into a catching space *k*.” *Id.* at p.1, 2:28–33. Paralyzing powder *h* is strewn over the “nearly horizontal trough” formed by inclined surface *a'* and the upper part of the rounded portion *b*. *Id.* at p. 1, 2:33–37. Insects reaching the portion *a'* get their legs into powder *h* and “cannot help gliding down into catching space *k*,” which is also strewn with paralyzing powder *h*. *Id.* at p.1, 2:35–41. “In the middle of the trap, bordered by the projecting rim *c*, there is arranged a perforated receptacle *g*, containing the bait, which supports a plate *i* filled with water and serving as a spittoon.” *Id.* at p.1, 2:41–45. Spittoon plate *i* may be replaced if not wanted by a suitable cap. *Id.* at p.3, 1:5–7.

Figure 5 of Jennerich is reproduced below.

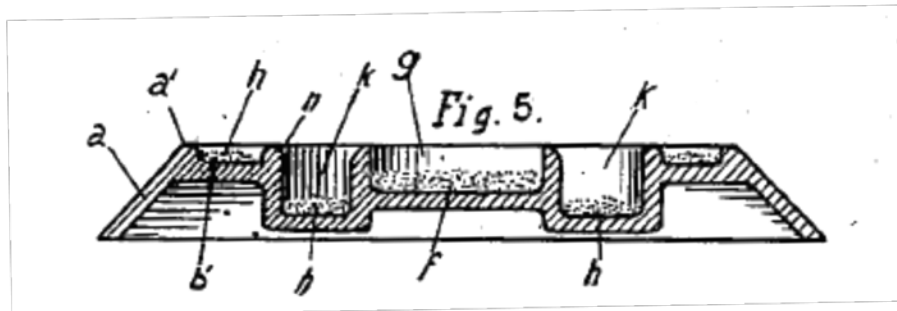


Figure 5 of Jennerich illustrates a cross-sectional view of a second embodiment of a trap with similar features to the trap shown in Figure 1, including:

an inclined wall *a*, a smoothly inclined surface *a'* connecting the top of said inclined wall with a slightly depressed area *b'* which is practically horizontal and capable of receiving and retaining paralyzing powder *h*, a deeply depressed catching space *k* which may also contain paralyzing powder *h* and a central space *g* which receives the bait *f*.

Ex. 1002, p. 2, 1:24–32.

2. *Summary of Lyng*

Lyng, titled “Trap for Crawling Insects,” describes “an insect trap constructed in the form of a box having an open front end and a removable top.” Ex. 1007, Abstract. “The box, removable top and ramp elements are fabricated from a material which provides a smooth and slippery surface.” *Id.* “A preferred material due to its cost and workability is polyethylene, which readily may be cast-molded or blow-molded to form the elements of the trap.” *Id.* at ¶ 23. According to Petitioner, “Lyng discloses the use of an interior trap surface with a surface roughness that is slippery to prevent bed bugs from climbing out, and teaches the use of the same materials identified in the ’973 [patent] Specification.” Pet. 25.

3. *Summary of Jennings*

Jennings, titled “Insect-Trap,” describes a trap in which “the insect passes down through an opening in the top of a receptacle and drops into a recess from which it is unable to escape.” Ex. 1006, 1:8–12. The trap includes polished zones from which the weight of the insect body carries it into the trap. *Id.* at 1:43–49.

4. *Summary of Anderson*

Anderson, titled “Protective Pet Dish,” is directed to a device for preventing crawling insects from climbing into a pet dish. Ex. 1003, Abstract.

Figures 3 and 4 of Anderson are reproduced below.

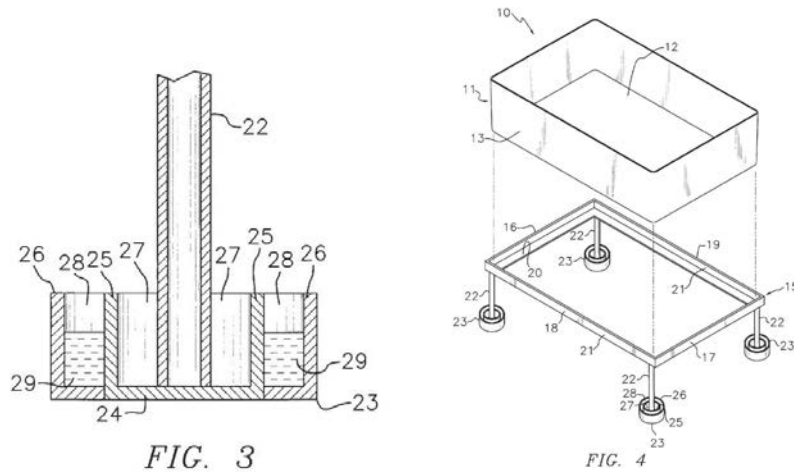


Figure 3 illustrates a cross-sectional view of support leg 22 and moat cup 23 of protective pet dish 10 shown in exploded view in Figure 4. Ex. 1003, 3:49–52, 3:62–63, 4:55. Each moat cup 23 has base 24, inner ring 25, and outer ring 26. *Id.* at 4:55–57. Moat space 28 between inner ring 25 and outer ring 26 holds fluid 29 “for preventing crawling insects from reaching the support legs 22. *Id.* 4:66–5:2. The lower end of each support leg 22 is inserted into the center space 27 of the associated moat cup 23. *Id.* at 5:2–3.

5. Summary of Dempster

Dempster, titled “Roach-Trap,” describes a trap “adapted to cause such insects to walk designedly into it, and capable of effectually preventing such insects from escaping from it.” Ex. 1024, p. 2, ll. 16–19.

Figure 2 of Dempster is reproduced below.

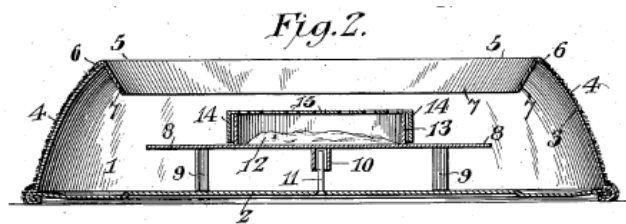


Figure 2 illustrates a central vertical sectional view of a roach trap.

Ex. 1024, p. 2, ll. 38–41. According to Petitioner, “Dempster discloses an

insect trap specifically adapted to catch insects by providing an exterior wall 3 that slopes upwardly at an angle to vertical and is made climbable by virtue of roughened outer faces 4.” Pet. 39–40 (citing Ex. 1024, p. 2, ll. 16–17, 48–56, Figs. 1, 2). Dempster also teaches that the trap has “smooth inner faces to prevent insects from crawling up the walls and escaping from the trap.” *Id.* at p. 2, ll. 60–63.

6. *Summary of Lang*

Lang, titled “Bed Bug Monitor,” describes an “insect monitoring and trapping device,” including a base and a lid, a heating device within the trap to attract insects, and an adhesive surface for trapping insects. Ex. 1008, Abstract. According to Petitioner, “Lang teaches that it may be preferable to have inclined and textured exterior surfaces on bed bug traps to facilitate the bugs’ ability to crawl into the trap.” Pet. 40 (citing Ex. 1008 ¶ 73, Figs 10, 11).

7. *Summary of Metcalfe*

Petitioner contends that Metcalfe, titled “Method and Apparatus for Controlling Pests,” teaches using powders to inhibit the ability of bugs to escape the trap. Pet. 51 (citing Ex. 1012, 1:38–40).

8. *Summary of Denton*

Denton, titled “Vermin Trap or Insulator,” is directed to a device to protect legs of furniture from insects and vermin. Ex. 1004, p. 1, ll. 7–9. The device “may be composed of cast or sheet metal, or of earthenware or porcelain, or other suitable material.” *Id.* at p. 1, ll. 52–54.

Figures 1 and 2 of Denton are reproduced below.

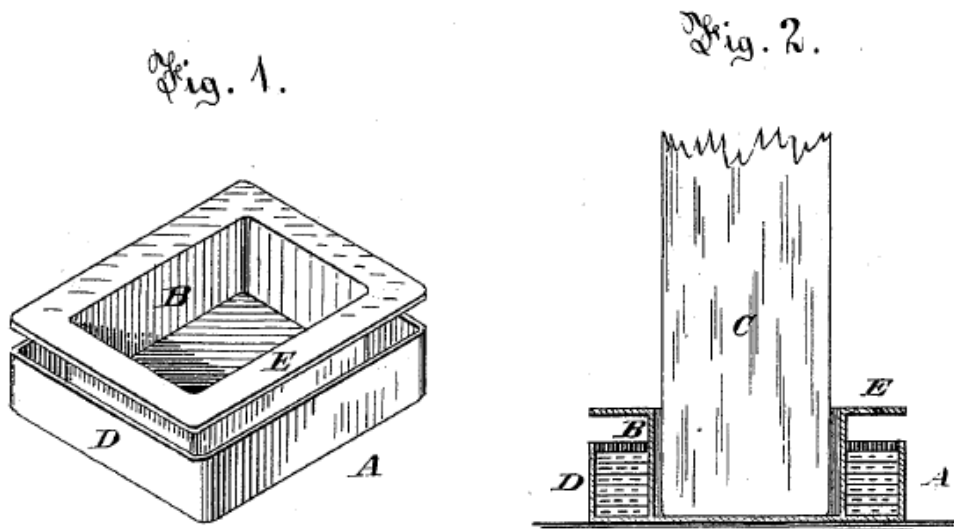


Figure 1 illustrates a perspective view and Figure 2 illustrates a vertical section of a trap or insulator. *Id.* at p. 1, ll. 20–23. As shown in Figure 2, central compartment B of cup A is adapted to receive leg C of a safe or other object to be protected from vermin. *Id.* p. 1, ll. 28–33. Objects without legs may be protected as well by resting them on the top of the compartment. *Id.* at p. 1, ll. 55–58. Element D is “an annular or encircling trough or moat to hold some liquid or semi-liquid which, either by reason of its viscid or other qualities, is repugnant to insects and prevents their passage from the floor to the furniture thus protected.” *Id.* at p. 1, ll. 33–38. Brim or flange E prevents materials and dust from contacting the liquid in the trough or moat. *Id.* at p. 1, ll. 42–46.

9. Summary of McKnight '812

McKnight '812, titled “Trap for Bed Bugs and the Like,” describes a climb-up pitfall trap with a rough exterior surface, a precipice, a smooth interior surface and sensory lures. Ex. 1013, Abstract.

10. Summary of McGrath

McGrath, titled “Pet Feeding Dish,” is a design patent and, accordingly, has no written description. Ex. 1005.

Figures 1 and 2 of McGrath are reproduced below.

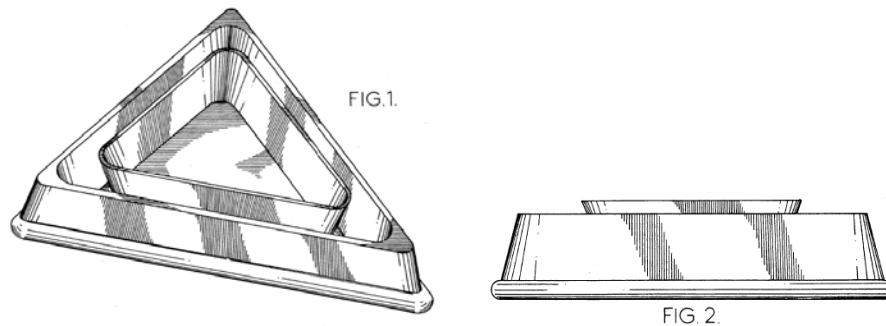


Figure 1 illustrates a perspective view of a pet feeding dish and Figure 2 is a front elevation of the same.

E. ASSERTED OBVIOUSNESS OVER JENNERICH, LYG, AND JENNINGS

Petitioner contends that claims 1–17 of the '973 patent would have been obvious over Jennerich, Lyng, and Jennings. Pet. 19–38; Pet. Reply 3–22. Patent Owner disputes Petitioner’s contentions. PO Resp. 16–39; PO Surreply 2–13. As discussed above, claim 1 is an amended version of an earlier claim that was rejected by the Examiner, and that rejection was affirmed by the Board based on prior art including Jennerich and Lyng. Ex. 1018, 11. The only differences between the claim that was previously rejected and claim 1 are the addition of language that states that the first and second pitfall traps are “bait-free” and that the walls of the first and second pitfall traps have a “a surface roughness which is slippery to prevent bed bugs from climbing out.” Ex. 1001, 11:18–39; Ex. 1018, 2.

Below we first address the impact of the prior Board decision on this proceeding. We then address Petitioner’s contention that the combination of the Figure 1 embodiment of Jennerich, in combination with Lyng and

Jennings, teaches every element of claim 1 of the '973 patent. Next, we address Petitioner's contention that the combination of the Figure 5 embodiment of Jennerich, in combination with Lyng and Jennings, teaches every element of claim 1 of the '973 patent. Next we address Petitioner's contention that the combination of Jennerich, Lyng, and Jennings teaches every limitation of claims 2–15, which depend from claim 1, independent claim 16, and claim 17, which also depends from claim 1. Finally we discuss sufficiency of the reasons for the asserted combination of Jennerich, Lyng, and Jennings.

1. Impact of Prior Ex Parte Board Decision

The Board previously affirmed that Jennerich anticipates the limitations of claim 1 common to the previously rejected claim. Ex. 1018. As explained by Petitioner, in the prior *ex parte* decision the Board found that Jennerich teaches the recited “upstanding, exterior climbable surface,” a “first pitfall trap,” and a “second pitfall trap.” Pet. 21–29. In particular, as to whether Jennerich teaches first and second pitfall traps, the prior *ex parte* Board decision found the following:

Appellants challenge, *inter alia*, whether Jennerich discloses and teaches the claimed “bed bug intercepting device having first and second bed bug pit fall traps.” Reply Br. 2; [Ex. 1026] App. Br. 12–13. Appellants contend the space relied on by the Examiner as the claimed second, or outer pitfall trap, could not be considered a pit fall trap because this space is a “nearly horizontal trough between a' and b (Fig. 1) for receiving paralyzing powder and only one insect catching space 'k' defined by steep walls.” *Id.*

The Examiner finds Appellants have failed to particularly claim the structure of the first and second pitfall traps in a manner which clearly overcomes the Examiner's interpretation of the catching space (k) of Jennerich as the first pitfall trap and the trough (defined between a' and b) as the second pitfall trap.

[Ex. 1027] Ans. 17. The Examiner finds “[t]he outer receptacle of Jennerich (trough defined between a' and bin Fig. 1) is capable of catching any insect includ[ing] bed bugs that are moving from the outer periphery of the basin (a) toward the inner receptacle (k) when the insect encounters the paralyzing powder (h) ”
[Ex. 1027] Ans. 18. We agree with the Examiner's findings.

Although Appellants are correct the “trough” of Jennerich is described as being “nearly horizontal,” the sides of this “trough” are slanted or rounded surfaces capable of preventing bed bugs from crawling out. [Ex. 1001] Jennerich, p. 1, col. 2, ll. 28–37. Jennerich discloses a' as “a smoothly inclined wall” and has a “rounded glazed portion.” *Id.* Each of these surfaces would be slippery with the powder h found in the trough (see Figure 1) preventing at least some bed bugs from exiting. Thus, the prior art structure is capable of performing the intended use of Appellants’ invention. Indeed, Appellants’ Specification suggests the key to preventing bed bugs from escaping is the combination of slick and upright surfaces, which Jennerich’s trough discloses. *See, e.g.*, Spec. ¶ 18 (“The double pitfall traps include slick (low friction) upstanding surfaces that crawling arthropods cannot climb so that they are trapped in the pitfall traps, preventing them from moving between furniture (or other object) and the floor.”).

Ex. 1018, 6–8.

In our Institution Decision, we stated that “[t]he effect in this proceeding of the Board’s decision during prosecution of the ’973 patent, and Patent Owner’s decision to continue prosecution and amend the claims rather than to challenge the Board’s decision, is an issue that would benefit from further briefing by the parties during trial.” Inst. Dec. 17 n.13. We further stated that “the [P]arties should support any argument that the Board and Patent Owner are or are not bound by factual issues resolved in the prior Board decision.” *Id.*

Following institution, Patent Owner argues in its Response that it is not bound by the prior *ex parte* Board decision and should be permitted to

relitigate the issue of whether Jennerich teaches first and second pitfall traps. PO Resp. 31–39. In particular, Patent Owner asserts it did not acquiesce to the prior *ex parte* Board decision because it filed a request for continued examination instead of an appeal. *Id.* at 33–35. Patent Owner also argues that the prior *ex parte* Board decision was “clearly erroneous” and we “should reverse” the prior findings of the Board with regard to the teachings of Jennerich. *Id.* at 35–39 (further arguing that the prior *ex parte* Board decision was clearly erroneous because Jennerich (Ex. 1002, 2:37–41) states that “[i]nsects reaching the portion *a'* get their legs into the powder and, even if they should want to turn back and flee, cannot help gliding down into the catching space *k*, which they are unable to leave.”).

Petitioner argues in reply that Patent Owner is collaterally estopped from raising issues that were resolved against it in the prior *ex parte* Board decision. Pet. Reply 3–4 (citing *MaxLinear, Inc. v. CF CRESPE LLC*, 880 F.3d 1373, 1376 (Fed. Cir. 2018) (stating “[i]t is well established that collateral estoppel, also known as issue preclusion, applies in the administrative context”); *see also VirnetX Inc. v. Apple Inc.*, 909 F.3d 1375, 1377 (2018) (“A party is collaterally estopped from relitigating an issue if: (1) a prior action presents an identical issue; (2) the prior action actually litigated and adjudged that issue; (3) the judgment in that prior action necessarily required determination of the identical issue; and (4) the prior action featured full representation of the estopped party.”) (quoting *Stephen Slesinger, Inc. v. Disney Enterprises, Inc.*, 702 F.3d 640, 644 (Fed. Cir. 2012)).¹⁴ Petitioner further asserts that it does not matter whether the prior

¹⁴ Petitioner has not argued that Patent Owner is collaterally estopped from arguing claim 1 is patentable over Jennerich based on the identify of scope

decision was clearly erroneous because preclusion applies equally to prevent “relitigation of wrong decisions just as much as right ones.” *Id.* (quoting *B & B Hardware, Inc. v. Hargis Industries, Inc.*, 135 S. Ct. 1293, 1308 (2015)). Finally, Petitioner contends that the prior *ex parte* Board decision was not wrong because Jennerich teaches first and second pitfall traps. *Id.* at 14–15.

Patent Owner responds by arguing for the first time that issue preclusion is unavailable in *inter partes* review. PO Surreply 2–5 (citing Ex. 2014, 26).¹⁵ Patent Owner also argues for the first time that by not asserting issue preclusion in the Petition, Petitioner waived any right to assert issue preclusion in this proceeding. *Id.* at 5–9; *see also* Tr. 68:21–69:10 (Patent Owner conceding it did not argue in the Patent Owner response that Petitioner waived asserting issue preclusion). Finally, Patent Owner argues that, even if available, issue preclusion should not be applied because the Board has the benefit of additional evidence in this case. PO Surreply 9–10. Although we find substantial merit to Petitioner’s contention that Patent Owner may not relitigate the Board’s prior,

between claim 1 and the claim that the Board’s prior decision affirmed as unpatentable. *See, e.g., Westwood Chemical, Inc. v. United States*, 525 F.2d 1367, 1375 Ct. Cl. (1975).

¹⁵ Exhibit 2014 is the Brief of Intervenor filed by the Office on June 9, 2017, in Appeal Nos. 2017-0126, -1266, and -1268. The brief states, among other things, that “[t]he USPTO may in the future, in its discretion (35 U.S.C. § 315(d)), choose to apply preclusion principles in situations not explicitly outlined by Congress,” and that “[t]he Board could, for example, decide to create estoppel principles through precedential decisions,” but that “[h]aving not implemented any rules, issued precedential decisions, or taken any other action on the issue, [], the USPTO currently applies estoppel only to the extent that Congress has explicitly outlined in the Patent Act.” Ex. 2014, 22.

unappealed decision finding Jennerich teaches many of the limitations of claim 1, we decline to resolve whether collateral estoppel is available in an *inter partes* review because, consistent with the prior *ex parte* Board decision, we find that Jennerich teaches the limitations at issue.

2. *Differences Between the Subject Matter of Claim 1 and the Teachings of the Figure 1 Embodiment of Jennerich, Lyng, and Jennings*

Figure 1 of Jennerich is reproduced again below.

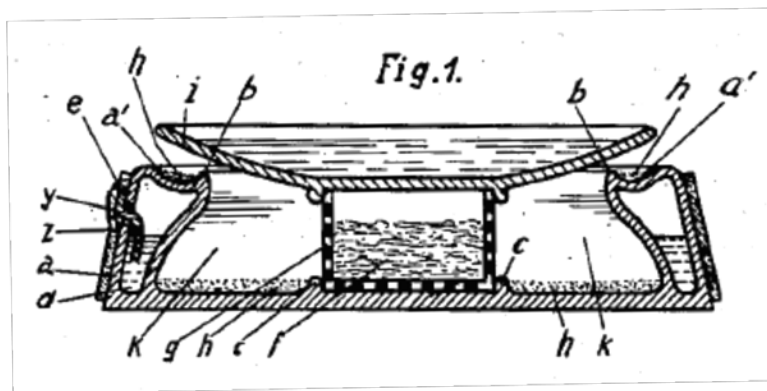


Figure 1 illustrates a cross-sectional view of an embodiment of the trap described by Jennerich. Ex. 1002, p.1, 2:6–8. For the reasons provided below, we find Petitioner has shown by a preponderance of the evidence that the combination of the Figure 1 embodiment of Jennerich, Lyng, and Jennings teaches each limitation of claim 1.

- a. “A bed bug intercepting device for placement under a support leg of furniture or other object toward or from which bed bugs travel, comprising”

We agree with Petitioner that the preamble of claim 1 is a non-limiting statement of intended use that, when used in an apparatus claim, cannot distinguish over a prior art apparatus that discloses all the recited structural limitations and is capable of performing the recited function. See Pet. 21; *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997); see also

Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp., 320 F.3d 1339, 1345 (Fed. Cir. 2003) (stating that “[a]n intended use or purpose usually will not limit the scope of the claim because such statements usually do no more than define a context in which the invention operates.”).

Further, Petitioner has shown, and Patent Owner does not dispute, that the Figure 1 embodiment of Jennerich teaches an insect intercepting device. See Ex. 1022 ¶ 37; Ex. 1002, Fig. 1).

- b. *“an upstanding, exterior climbable surface that bed bugs can climb”*

Petitioner has shown, and Patent Owner does not dispute, that the Figure 1 embodiment of Jennerich teaches a bug trap with “slanting and, if desired, roughened outer walls *a*,” corresponding to the recited “upstanding, exterior climbable surface that bed bugs can climb.” Ex. 1002, p.1, 2:28–33, Fig. 1; see also Pet. 21–22; Ex. 1022 ¶ 37.

- c. *“first and second pitfall traps disposed inwardly of the climbable exterior surface for trapping bed bugs”*

Petitioner has shown, and Patent Owner does not dispute, that the Figure 1 embodiment of Jennerich teaches catching space *k*, corresponding to the recited “first” pitfall trap disposed inwardly of the climbable exterior surface. Pet. 22; Ex. 1002, p.1, 2:28–33; see also PO Resp. 22 (stating that “Jennerich has only one ‘catching space *k*’ that traps the insects”).

Petitioner further contends that the trough formed between *a*’ and *b* in the Figure 1 embodiment of Jennerich corresponds to a second pitfall trap disposed inwardly of the climbable exterior surface. Pet. 22; see also Ex. 1022 ¶ 37. Petitioner supports its argument by noting that during prosecution both the Examiner and the prior Board decision found the trough was capable of catching any insect moving from the outer periphery of the

basin (*a*) toward the inner receptacle (*k*). Pet. 22–23 (citing Ex. 1017, 3; Ex. 1018, 6–7).

Patent Owner argues that the trough is not a pitfall trap. Patent Owner emphasizes that Jennerich states as follows:

The inclined surface *a'* and the upper part of the rounded portion *b* which together, form a nearly horizontal trough and the catching space *k* are strewn over with my paralyzing powder *h*. Insects reaching the portion *a'* get their legs into the powder and, even if they should want to turn back and flee, cannot help gliding down into the catching space *k*, which they are unable to leave.

PO Resp. 23 (quoting Ex. 1002, p. 2, col. 2, ll. 28–41). Patent Owner reasons that the trough “functions as a slide and causes any insects that reach the inclined surface *a'* to glide down the trough into the catching space *k*, even if they try to remain in the trough that Petitioner asserts to be a pitfall trap.” *Id.* at 24. Patent Owner further argues that because insects glide from the trough to catching space *k*, the trough fails to meet Petitioner’s own definition of a trap, which retains insect by allowing entry but not exit. *Id.* (quoting Pet. 19); *see also* Ex. 2001 ¶¶ 11–13 (stating that Jennerich is obviously a single pitfall trap).

Petitioner argues in reply that: (1) the trough between *a'* and *b* is bowl-shaped, with inclined surfaces on both sides to hold paralyzing powder *h* in the trough; (2) the paralyzing powder deprives insects of “the ability to move on . . . inclined surfaces;” (3) the inclined surface on the inner portion (the *b* side) of the trough is as steep as the inclined surface on the outer portion (the *a'* side) of the trough; and (4) “if an insect with paralyzing powder on its legs cannot ‘turn back and flee’ because it is unable to climb

the inclined outer portion of the trough, then it also would be unable to climb the similarly inclined inner portion of the trough.” Pet. Reply 14–15.

Consistent with the prior Board decision, we are persuaded that Petitioner has shown by a preponderance of the evidence in this proceeding that the trough between *a'* and *b* of the Figure 1 embodiment of Jennerich teaches a second pitfall trap. Whether the trough of Jennerich teaches a pitfall trap is dictated by the physical properties of the trough as it is described and illustrated, not by any desire to have the trough ultimately function in a way that would lead trapped insects to glide down into the catching space *k*. We credit the testimony of Dr. Rotramel over Mr. Sorkin in this regard and we are persuaded that even though the trough of Jennerich is described as being “nearly horizontal,” the sides of the trough are shown and described to be slanted or rounded surfaces that serve to prevent insects from crawling out. See Ex. 1002, p. 1, col. 2, ll. 28–41.

d. “wherein the first pitfall trap comprises a bait-free inner, support-leg receiving receptacle for receiving the support leg of furniture or other object”

We agree with Petitioner that Jennerich teaches catching space *k* with a bottom surface that comprises a bait-free, inner, support-leg receiving receptacle. Pet. 23–24. Petitioner’s arguments mirror the Examiner’s finding during prosecution. See Ex. 1020, 2. Patent Owner disputes Petitioner’s contention by arguing that “Jennerich states ‘[i]n the middle of the trap, bordered by the projecting rim *c*, there is arranged a perforated receptacle *g*, containing the bait.’” PO Resp. 20–21 (quoting Ex. 1002, p. 2, col. 2, ll. 41–43). Patent Owner’s argument is not persuasive because receptacle *g* (along with plate *i*) is removable from catching space *k*, leaving

a bait-free inner, support-leg receiving receptacle. *See* Pet. Reply 16; Ex. 1002, 2:41–44; Ex. 1035, 134:5–17, 135:14–136:9.

- e.* “wherein the inner receptacle is bounded by an upstanding peripheral surface that has a surface roughness which is slippery to prevent bed bugs from climbing out”

Catching space *k* shown in the Figure 1 embodiment of Jennerich is defined by an upstanding peripheral surface descending vertically from rounded glazed portion *b*. Jennerich does not explicitly explain that the surface roughness of the wall forming catching space *k* is “slippery to prevent bed bugs from climbing out,” and instead relies on a paralyzing powder *h* that is “capable of depriving the insects in question of their ability to move on vertical or inclined surfaces.” Ex. 1002, p. 2, col. 1, ll. 6–12.

As noted by Petitioner, the ’973 patent recognizes that pitfall traps with smooth surfaces were well known in the art. Pet. 8, 19–20. *See WesternGeco LLC v. ION Geophysical Corp.*, 889 F.3d 1308, 1329–30 (Fed. Cir. 2018) (“A statement in a patent that something is in the prior art is binding on the applicant and patentee for determinations of anticipation and obviousness.”) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1570 (Fed. Cir. 1988)). The ’973 patent states, as background to the invention, that “[t]he pitfall trap is an adaptation of hunting techniques that date back to primitive man,” and that “[c]rawling insects and spiders fall into the trap and are unable to escape because they cannot climb up the smooth interior surface.” Ex. 1001, 2:25–26, 30–32. Petitioner reasons that it would have been an obvious design choice to make the surfaces of a pitfall trap slippery to prevent insects from escaping. Pet. 24; *see also* Ex. 1022 ¶ 37.

Petitioner has also shown that Lyng teaches an insect trap with interior surfaces “fabricated from a material which provides a smooth and

slippery surface” which “provides no footing for an insect which has crawled therein so the insect cannot crawl out of the trap.” Pet. 25 (quoting Ex. 1007, Abstract, ¶ 12). Similarly, Petitioner has also shown that Jennings teaches an insect trap that uses a “polished material” so that “as the insect passes from the roughened zone to the polished zone its security of footing ceases.” Pet. 26 (quoting Ex. 1006 ll. 33–48). Patent Owner does not dispute that Lyng and Jennings teach a surface roughness which is slippery to prevent bed bugs from climbing out. See PO Resp. 22, 24 (noting that “[t]he secondary references of Lyng and Jennings are merely cited for supporting various slippery surfaces in Jennerich,” and that Lyng and Jennings “only disclose single pitfall traps themselves”). Petitioner has shown by a preponderance of the evidence that Jennerich teaches that “the inner receptacle is bounded by an upstanding peripheral surface” and that Lyng and Jennings teach pitfall traps that have “a surface roughness which is slippery to prevent bed bugs from climbing out,” as recited by claim 1.

- f. *“the second pitfall trap comprises a bait-free outer receptacle wherein the outer receptacle includes upstanding inner and outer peripheral surfaces that form the outer receptacle therebetween and that each have a surface roughness which is slippery to prevent bed bugs from climbing out”*

For the reasons explained above, Petitioner has shown that the Figure 1 embodiment of Jennerich teaches a trough formed between *a'* and *b* in which corresponds to a second pitfall trap. There is no dispute that the trough formed by the “smoothly inclined surface” *a'* and the upper part of the “rounded glazed portion” *b* is bait-free. Ex. 1002, p. 2, col. 2, ll. 33–37 (stating that the trough is strewn with paralyzing powder *h*). Further, as

explained above, Lyng and Jennings teach pitfall traps that have “a surface roughness which is slippery to prevent bed bugs from climbing out.”

- g. “wherein bed bugs are trapped in the inner receptacle or outer receptacle as a result of being unable to climb out”*

For the reasons provided above, Petitioner has shown that the Figure 1 embodiment of Jennerich teaches a first pitfall trap comprising an inner receptacle and a second pitfall trap comprising an outer receptacle, and, as pitfall traps, the receptacles would trap bed bugs as a result of being unable to climb out.

- h. “wherein the inner receptacle includes a bottom surface on which the support leg is received such that bed bugs traveling from the furniture or other object are trapped in the inner receptacle and bed bugs traveling toward the furniture or other object are trapped in the outer receptacle”*

For the reasons provided above, we agree with Petitioner that catching space *k* has a bottom surface capable of receiving a support leg, and that catching space *k* is capable of trapping bed bugs traveling from a support leg placed into catching space *k*. Likewise, for the reasons provided above, Petitioner has shown that the Figure 1 embodiment of Jennerich teaches a trough formed between *a'* and *b* in Figure 1 of Jennerich which corresponds to a second pitfall trap comprised of an outer receptacle, and that trough is capable of catching bed bugs traveling towards the furniture or other object.

3. *Differences Between the Subject Matter of Claim 1 and the Teachings of the Figure 5 Embodiment of Jennerich, Lyng, and Jennings*

Figure 5 of Jennerich is again reproduced below.

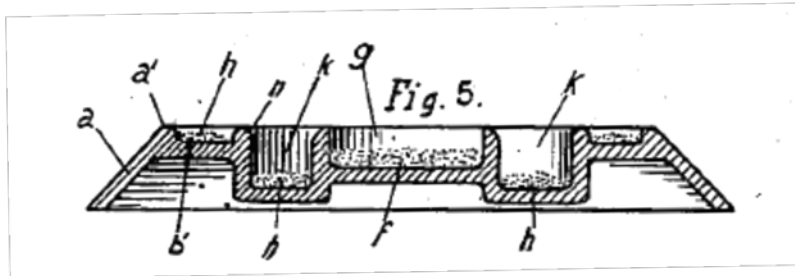


Figure 5 of Jennerich illustrates a cross-sectional view of a second embodiment of a trap with similar features to the trap shown in Figure 1. For the reasons provided below, we find Petitioner has shown by a preponderance of the evidence that the combination of the Figure 5 embodiment of Jennerich, Lyng, and Jennings teaches each limitation of claim 1.

- a. *“A bed bug intercepting device for placement under a support leg of furniture or other object toward or from which bed bugs travel, comprising”*

As explained above, the preamble of claim 1 is a non-limiting statement of intended use. Moreover, Petitioner has shown, and Patent Owner does not dispute, that the Figure 5 embodiment of Jennerich teaches an insect intercepting device. See Ex. 1022 ¶ 37; Ex. 1002, Fig. 5.

- b. *“an upstanding, exterior climbable surface that bed bugs can climb”*

Petitioner has shown, and Patent Owner does not dispute, that the Figure 5 embodiment of Jennerich teaches inclined wall *a*, corresponding to the recited “upstanding, exterior climbable surface that bed bugs can climb.” Ex. 1002, p.2, 1:24–32, Fig. 5; see also Pet. 21–22; Ex. 1022 ¶ 37.

- c. *“first and second pitfall traps disposed inwardly of the climbable exterior surface for trapping bed bugs”*

Petitioner has shown that central space *g* and catching space *k* of the Figure 5 embodiment of Jennerich correspond to the recited first (inner receptacle) and second (outer receptacle) pitfall traps, respectively. Pet. 22–24; Ex. 1002, p.2, 1:24–32, Fig. 5. Patent Owner does not dispute that catching space *k* of the Figure 5 embodiment of Jennerich corresponds to the recited “second” pitfall trap disposed inwardly of the climbable exterior surface. Pet. 23; Ex. 1002, p.2, 1:24–32, Fig. 1; *see also* PO Resp. 22 (stating that “Jennerich has only one ‘catching space *k*’ that traps the insects”). Instead, Patent Owner argues that central space *g* is not a pitfall trap because of the following: (1) Petitioner’s assertion is “without foundation” and “cites nothing in Jennerich that supports Petitioner’s naked assertion that central space *g* constitutes a pitfall trap,” (2) “central space *g* is for receiving bait *f*, not a catching space with bait surrounded by another catching space *k* without bait,” (3) the assertion the central space *g* is a pitfall trap is “lacking in purpose” and based on “impermissible hindsight reconstruction of the ’973 patent.” PO Resp. 28. Patent Owner’s arguments are not persuasive because they fail to distinguish a pitfall trap from the structure taught by central space *g* of the Figure 5 embodiment of Jennerich. In other words, whether central space *g* is intended to receive bait or catch insects is irrelevant to the pertinent inquiry, which is whether central space *g* is structurally distinguishable from a “pitfall trap,” as described in the ’973 patent. Contrary to Patent Owner’s argument, Petitioner persuasively explains the following:

Regarding Patent Owner’s arguments that space *g* is not a pitfall trap or a support-leg receiving receptacle [], space *g* has a

flat bottom and vertical walls—just like receptacle *k*, which Patent Owner does not dispute is a pitfall trap. It is immaterial what purpose Jennerich might have ascribed to space *g*; what matters is that *g* discloses the claimed structure: an inner “receptacle” that can receive a support leg and trap insects.

Pet. Reply 21.

- d. *“wherein the first pitfall trap comprises a bait-free inner, support-leg receiving receptacle for receiving the support leg of furniture or other object”*

We agree with Petitioner that central space *g* has a bottom surface and corresponds to the recited “support-leg receiving receptacle.” Structurally, nothing more than that is required by the claim. Patent Owner argues that, because “the central space *g* does not show and is not described as a support-leg receiving receptacle,” and instead “is described as receiving ‘the bait *f*,’” Petitioner’s assertion is incorrect. PO Resp. 26. Patent Owner does not identify any structural feature that a “support-leg receiving receptacle” requires that central space *g* fails to disclose, even if central space *g* is not expressly described as “a support-leg receiving receptacle.”

With regard to being “bait-free,” Jennings teaches a bait-free pitfall trap. Ex. 1006. Turning back to Jennerich, it states that the trap includes “a central space *g* which receives the bait *f*.” Ex. 1002, p.2, 1:24–32. If bait *f* is not received in central space *g*, then central space *g* is “bait-free,” as claimed.¹⁶ Moreover, the trap described in the ’973 patent isn’t, in operation, “bait-free” as the ’973 patent explains that “[h]umans are effectively acting as bait for a trap.” Ex. 1001, 4:3–4; 7:12–13. In any

¹⁶ Petitioner has articulated persuasive reasoning for why a skilled artisan would have used Jennerich’s apparatus without bait. *See infra* § III.E.6; *see also* Ex. 1014, 3, 5 (explaining that “[t]he only food of the bed bug is blood” and “the best bait for a bed bug trap is the host.”).

event, Jennerich teaches central space *g* as corresponding structure for receiving a support leg of furniture on which a human would be seated as bait. Nothing more is required by the recited “bait-free inner, support-leg receiving receptacle for receiving the support leg of furniture or other object.” See Pet. Reply 22 (arguing that a person of ordinary skill “would have known that the bait shown in Figure 5 of Jennerich could simply constitute the leg of furniture on which a person resides, such that the person serves as the bait as taught by Quarles (EX1014, 3, 5).”).

- e. “wherein the inner receptacle is bounded by an upstanding peripheral surface that has a surface roughness which is slippery to prevent bed bugs from climbing out”*

Central space *g* in the Figure 5 embodiment of Jennerich is defined by an upstanding peripheral surface descending vertically from rounded glazed portion *b*. Jennerich does not explicitly explain that the surface roughness of the wall forming central space *g* is “slippery to prevent bed bugs from climbing out.” As noted by Petitioner, the ’973 patent recognizes that pitfall traps with smooth surfaces were well known in the art. Pet. 8, 19–20. The ’973 patent states, as background to the invention, that “[t]he pitfall trap is an adaptation of hunting techniques that date back to primitive man,” and that “[c]rawling insects and spiders fall into the trap and are unable to escape because they cannot climb up the smooth interior surface.” Ex. 1001, 2:25–26, 30–32. Petitioner reasons that it would have been an obvious design choice to make the surfaces of a pitfall trap slippery to prevent insects from escaping. Pet. 24; see also Ex. 1022 ¶ 37.

Petitioner has also shown that Lyng teaches an insect trap with interior surfaces “fabricated from a material which provides a smooth and slippery surface” which “provides no footing for an insect which has

crawled therein so the insect cannot crawl out of the trap.” Pet. 25 (quoting Ex. 1007, Abstract, ¶ 12). Similarly, Petitioner has also shown that Jennings teaches an insect trap that uses a “polished material” so that “as the insect passes from the roughened zone to the polished zone its security of footing ceases.” Pet. 26 (quoting Ex. 1006 ll. 33–48). Patent Owner does not dispute that Lyng and Jennings teach a surface roughness which is slippery to prevent bed bugs from climbing out. See PO Resp. 22, 24 (noting that “[t]he secondary references of Lyng and Jennings are merely cited for supporting various slippery surfaces in Jennerich,” and that Lyng and Jennings “only disclose single pitfall traps themselves”). Petitioner has shown by a preponderance of the evidence that Jennerich teaches “the inner receptacle is bounded by an upstanding peripheral surface” and that Lyng and Jennings teach pitfall traps that have “a surface roughness which is slippery to prevent bed bugs from climbing out,” as recited by claim 1.

- f. *“the second pitfall trap comprises a bait-free outer receptacle wherein the outer receptacle includes upstanding inner and outer peripheral surfaces that form the outer receptacle therebetween and that each have a surface roughness which is slippery to prevent bed bugs from climbing out”*

For the reasons explained above, Petitioner has shown that catching space *k* of the Figure 5 embodiment of Jennerich corresponds to the recited second (outer receptacle) pitfall trap. Pet. 22–24; Ex. 1002, p.2, 1:24–32, Fig. 5. There is no dispute that catching space *k* is bait-free. Ex. 1002, p. 2, 1:24–32 (stating that catching space *k* may contain paralyzing powder *h*). Further, as explained above, Lyng and Jennings teach pitfall traps that have “a surface roughness which is slippery to prevent bed bugs from climbing out.”

- g. “wherein bed bugs are trapped in the inner receptacle or outer receptacle as a result of being unable to climb out”*

For the reasons provided above, Petitioner has shown that the Figure 5 embodiment of Jennerich teaches a first pitfall trap comprising an inner receptacle and a second pitfall trap comprising an outer receptacle, and, as pitfall traps, the receptacles would trap bed bugs as a result of being unable to climb out.

- h. “wherein the inner receptacle includes a bottom surface on which the support leg is received such that bed bugs traveling from the furniture or other object are trapped in the inner receptacle and bed bugs traveling toward the furniture or other object are trapped in the outer receptacle”*

For the reasons provided above, we agree with Petitioner that Jennerich teaches central space *g* with a bottom surface that would receive a support leg, and that central space *g* would trap bed bugs traveling from a support leg placed into central space *g*. Likewise, for the reasons provided above, Petitioner has shown that the Figure 5 embodiment of Jennerich teaches catching space *k* which corresponds to a second pitfall trap comprised of an outer receptacle, and that catching space *k* would catch bed bugs traveling towards the furniture or other object.

4. Differences Between the Subject Matter of Claims 2–15 and the Teachings of Jennerich, Lyng, and Jennings

Petitioner provides claim charts detailing how the combination of Jennerich (under either the Figure 1 or Figure 5 embodiment), Lyng, and Jennings teaches each of the additional elements of claims 2–15, which depend from claim 1 of the ’973 patent. Pet. 29–38. Claims 2–6 further recite features of the exterior surface of the trap; claim 7 requires that the outer receptacle is annular in shape; claims 8, 9, 12, and 13 recite features

directed to a lubricating powder; claims 10 and 14 specify a surface roughness value; and claims 11 and 15 recite surfaces comprised of polymer. Ex. 1001, 11:39–12:24. Patent Owner does not dispute Petitioner’s contentions with respect to the additional limitations of these dependent claims. Accordingly, having reviewed Petitioner’s identification of these features in the asserted prior art, we find that Petitioner has shown by a preponderance of the evidence that the combination of Jennerich, Lyng, and Jennings teaches each of the additional elements of claims 2–15, and we adopt Petitioner’s contentions at pages 29–38 of the Petition as our own findings.

5. Differences Between the Subject Matter of Claims 16 and 17 and the Teachings of Jennerich, Lyng, and Jennings

Claim 16 recites features substantially similar to claim 1, as shown by Petitioner in a side-by-side comparison of recited limitations. Pet. 21–29. The only material recitation in claim 16 not in claim 1 is the following: “wherein the upstanding peripheral surface of the inner receptacle and the upstanding inner peripheral surface of the outer receptacle ascend to a common peripheral rim.” Ex. 1001, 12:46–48. Petitioner explains that both the Figure 1 and the Figure 5 embodiments of Jennerich teach this:

Jennerich discloses “the upstanding peripheral surface of the inner receptacle (surface between *c* & *b* which define *k* in Fig. 1) and the upstanding inner peripheral surface of the outer receptacle (*b*) ascend to a common peripheral rim (*b*)[.]” (EX1020, 2; EX1002, Fig. 1.) The opposing surfaces of the common wall between receptacles (*k*) and (*g*) in Fig. 5 likewise ascend to a common peripheral rim.

Pet. 29.

Additionally, while claim 1 recites an “exterior climbable surface,” claim 16 and claim 17, which depends from claim 1, both further recite that

the exterior climbable surface “slopes upwardly at an angle to vertical.” See Pet. 21–22. There is no dispute that both the Figure 1 and the Figure 5 embodiments of Jennerich teach an exterior climbable surface that “slopes upwardly at an angle to vertical.” See, e.g., Ex. 1002, Figs. 1 and 5.

Patent Owner disputes Petitioner’s contentions with regard to claim 16 and claim 17 on the same grounds Patent Owner raises with respect to claim 1. See PO Resp. 19–31. Accordingly, for the same reasons discussed above with respect to claim 1, we find Petitioner has shown that the combination of the embodiment of Figure 1 of Jennerich, Lyng, and Jennings and the combination of the embodiment of Figure 5 of Jennerich, Lyng, and Jennings both teach each element of claim 16 and claim 17.

6. Reasons for The Combination of Jennerich, Lyng, and Jennings

As discussed above, the Figure 1 and Figure 5 embodiments of Jennerich each teach nearly every limitation of independent claims 1 and 16, including, importantly, first and second pitfall traps. Because Jennerich teaches first and second pitfall traps by virtue of the structures taught by Jennerich, Petitioner need not provide a reason to modify Jennerich to establish that Jennerich teaches first and second pitfall traps as recited in the ’973 patent.

What is missing from any express disclosure of the Figure 1 and Figure 5 embodiments of Jennerich is the recited “surface roughness which is slippery to prevent bed bugs from climbing out.” For this feature, Petitioner has persuasively shown that a person of ordinary skill in the art would readily design the surface roughness of the slippery surfaces of the inner and outer peripheral surfaces of the pitfall traps so as to prevent the targeted insects from escaping from the confines of the pitfall traps. See

Pet. 20 (citing Ex. 1018, 9). Petitioner further reasons that “[i]t would have been obvious to make the peripheral surfaces of the traps of Jennerich slippery to prevent insects from escaping, in view of Lyng and Jennings.”

Pet. 28. Specifically, Petitioner reasons as follows:

Given the teaching in Lyng and Jennings regarding the use of slippery surfaces to prevent insects from having a foothold on those surfaces, and Lyng’s teaching of the cost and ease of manufacture benefits associated with the use of polymers, a [person of ordinary skill] would have been motivated to make the interior trap surfaces of Jennerich “slippery” to prevent insects from escaping the trap. (EX1022 ¶31.) It would have been obvious to a [person of ordinary skill] to make Jennerich’s trap surfaces “slippery,” given that the object of a “trap” is to prevent insects from escaping, given the predictable and not unexpected result that making the interior trap surfaces of Jennerich more “slippery” would improve the functioning of the trap, given the reasonable expectation in achieving that result using the same materials of construction as called for in the ’973 patent, and given the fact that one object of trapping insects is to permit their detection. (EX1022 ¶¶32, 42.)

Pet. 26.

Patent Owner’s arguments to the contrary are misplaced because they presume Jennerich must be modified to teach two pitfall traps and attempt to afford patentable weight to how the apparatus of the ’973 patent may be used rather than focusing only on the structure recited by the ’973 patent.

PO Resp. 10–11, 19–31.

Patent Owner’s argument that it is only through “impermissible hindsight” that Petitioner can identify two pitfall traps in Jennerich is a misapplication of the law. *Id.* at 24–25. For the reasons provided above, we rejected Patent Owner’s argument that Jennerich teaches only one pitfall trap. It is the structure taught by Jennerich that describes two pitfall traps,

and “hindsight” has no bearing on whether Jennerich teaches one or two pitfall traps. Similarly, Patent Owner’s arguments that Jennerich “does not need another catching space” and that it would not have been obvious, based on Lyng and Jennings, to “convert Jennerich into a double pitfall trap” fail to be persuasive because, as explained above, Jennerich teaches two pitfall traps without modification by virtue of the structure it discloses, regardless of how Jennerich purportedly uses that structure.

In regard to the Figure 1 embodiment of Jennerich, Patent Owner argues that “something else,” and specifically “impermissible hindsight,” “would be needed to transform the stated function of [the Figure 1 embodiment of] Jennerich’s trough.” *Id.* at 25. Patent Owner’s theory is fundamentally flawed because the “stated function” of a structural feature of Jennerich does not change the structure of the feature taught by Jennerich. Thus, contrary to Patent Owner’s argument, to show obviousness Petitioner need not show a “teaching, motivation or purpose for forming a double pitfall trap,” because the Figure 1 embodiment of Jennerich teaches a double pitfall trap. *See id.*

Patent Owner also argues that “while Petitioner alleges in this Petition that it would have been obvious to modify Jennerich to have an inner receptacle and an outer receptacle each having slippery peripheral surfaces in order to prevent bed bugs from climbing out, Petitioner is simultaneously promoting its interceptor device as including “dual-detection zones.” PO Resp. 26 (citing Ex. 2004, 1, 3-4). Patent Owner’s argument concerning how a product is promoted is not a persuasive rebuttal to Petitioner’s explanation that it would have been obvious to make the walls of the pitfall

traps taught by Jennerich slippery based on the teachings of Lyng and Jennings.

In regard to the Figure 5 embodiment of Jennerich, we also are persuaded that Petitioner has shown a sufficient rationale to modify the Figure 5 embodiment of Jennerich, and, in particular central space *g*, to correspond to the recited “bait-free” receptacle. Petitioner explains that although Figure 5 is depicted as containing bait, “it would have been obvious to construct the trap without bait as disclosed in Jennings, particularly in view of Quarles’ teaching that ‘[t]he only food of the bed bug is blood’ and ‘the best bait for a bed bug trap is the host.’” Pet. 24 (quoting Ex. 1014, 3, 5). The Figure 1 embodiment of Jennerich uses a separate receptacle for bait, such that catching space *k* is, arguably, a separate bait free receptacle, the rationale for constructing the trap without bait in the receptacle also applies equally to both embodiments of Jennerich.

Patent Owner’s assertion that “converting Jennerich from a baited trap into a non-baited trap would result in an ineffective trap without any means of attracting insects” and is “ultimately contrary to Jennerich’s teachings” is not persuasive because the structure of the trap in both Jennerich and the ’973 patent remains the same whether or not it is baited. Moreover, as explained above, “bait-free” as used in the ’973 patent, simply requires that “[h]umans are effectively acting as bait for a trap,” not that the trap operates entirely without bait. Ex. 1001, 4:3–4; 7:12–13. Central space *g* would receive a support leg of furniture on which a human would be seated as bait. Accordingly, we are not persuaded that the Figure 5 embodiment of

Jennerich requires any modification to be “bait-free” in accordance with the ’973 patent.

7. *Objective Evidence of Nonobviousness*

Evidence of objective indicia of non-obviousness, when present, must always be considered en route to a determination of obviousness. *See In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1075–76 (Fed. Cir. 2012). As the Supreme Court explained, “[s]uch secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc. might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.” *Graham*, 383 U.S. at 17–18. To be relevant, evidence of secondary considerations of nonobviousness must be commensurate in scope with the claimed invention. *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011). “For objective evidence of secondary considerations to be accorded substantial weight, its proponents must establish a nexus between the evidence and the merits of the claimed invention.” *In re Huai-Hung Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011).

Nexus is a legally and factually sufficient connection between the objective evidence and the claimed invention, such that the objective evidence should be considered in determining nonobviousness. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988). In the absence of an established nexus with the claimed invention, secondary consideration factors are not entitled to much, if any, weight and generally have no bearing on the legal issue of obviousness. *See In re Vamco Machine & Tool, Inc.*, 752 F.2d 1564, 1577 (Fed. Cir. 1985). Where objective indicia “result[] from something other than what is both claimed

and novel in the claim, there is no nexus to the merits of the claimed invention.” *Id.*

Patent Owner contends that two objective indicia weigh in favor of nonobviousness: licensing and copying.¹⁷ PO Resp. 29; PO Surreply 23–25. Petitioner asserts that Patent Owner’s evidence of objective indicia does not support nonobviousness. Pet. Reply 41–45. For the reasons provided below, we find that the nexus between the merits of the invention and the evidence of licensing and copying, if any, is weak.

a. Settlement and Licensing

Patent Owner states that after it filed a patent infringement suit based on the ’973 patent and another patent against a third party, the suit was settled with the third party executing a license under the ’973 patent and other patents. PO Resp. 7. Patent Owner provides no additional evidence of revenue earned based on licensing other than that it was a “royalty-bearing license.” PO Surreply 24.

Petitioner argues that Patent Owner has not provided the license or any information about the license. Pet. Reply 41–42; *see also* Ex. 1036, 55:4–17 (counsel for Patent Owner directing its witness during a deposition not to answer any questions about the terms of the license agreement). Petitioner argues that the mere existence of a license agreement fails to show

¹⁷ Patent Owner contends that it markets and sells a double pitfall trap according to the ’973 patent in the United States as the ClimbUp[®] Interceptor. PO Resp. 7. Patent Owner, however, provides no evidence of sales or market share and does not argue that any commercial success of the ClimbUp[®] Interceptor provides objective evidence of nonobviousness. *See, e.g.*, PO Surreply 23–25 (discussing secondary considerations of nonobviousness without identifying commercial success as a relevant consideration).

any nexus between the merits of the invention and the licenses themselves. *Id.* (citing *In re Antor Media Corp.*, 689 F.3d 1282, 1293–94 (Fed. Cir. 2012)). In reply, Patent Owner argues that “[t]he license being taken shortly after filing suit for infringement certainly establishes a nexus and shows respect for the ’973 patent by an accused infringer.” PO Surreply 24. We are not persuaded that the mere timing of settlement of an infringement suit establishes the requisite nexus between the objective evidence and the claimed invention.

We determine that Patent Owner’s evidence of settlement and licensing is entitled to little weight in our obviousness analysis because there is no evidence to establish the settlement of the infringement suit was driven by the merits of the ’973 patent, as opposed to the desire to save litigation costs or the merits of other patents held by Patent Owner that were included in the settlement and license. *See EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 907–08 (Fed. Cir. 1985) (explaining that it is often “cheaper to take licenses than to defend infringement suits, or for other reasons unrelated to the unobviousness of the licensed subject matter”). The absence of any evidence of the royalty rate or payment due under the license further undermines the persuasiveness of the license as evidence of nonobviousness.

b. Copying

Patent Owner contends that it markets and sells a double pitfall trap according to the ’973 patent in the United States as the ClimbUp[®] Interceptor.¹⁸ PO Resp. 7; *see also* Ex. 2002 (pictures of packaging for the

¹⁸ Patent Owner provides no evidence of sales or market share and does not argue that any commercial success of the ClimbUp[®] Interceptor provides objective evidence of nonobviousness. *See, e.g.*, PO Surreply 23–25

ClimbUp[®] Interceptor). Patent Owner provides no testimony or evidence other than a photo of the device on the packaging to show that the ClimbUp[®] Interceptor practices any claim of the '973 patent. Additionally, as Petitioner notes, the pictures of the ClimbUp[®] Interceptor packaging provided by Patent Owner shows it is marked with certain U.S. patent numbers, but it is not marked with the '973 patent. *See* Pet. Reply 42–43, Ex. 2002, 4. Nor does Mr. Sorkin address the features of the ClimbUp[®] Interceptor in his declaration. *See* Ex. 2001. Petitioner, however, does not direct us to any limitation from claims of the '973 patent missing from the ClimbUp[®] Interceptor practices. We find the evidence presented by Patent Owner sufficient to presume that the ClimbUp[®] Interceptor practices claims of the '973 patent. *See PPC Broadband, Inc. v. Corning Optical Communications RF, LLC*, 815 F.3d 734, 747 (Fed. Cir. 2016); *see also Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1073 n.7 (Fed. Cir. 2018) (stating that there is no requirement for a limitation-by-limitation analysis or documentary evidence in order to establish that a product embodies a claimed invention in order to establish a presumption of nexus).

Patent Owner also provides pictures of the packaging of a product sold by Petitioner, the Hot Shot[®] Bed Bug Interceptor[™], that Patent Owner alleges infringes the '973 patent in a suit filed in district court. PO Resp. 8–10; Ex. 2004. According to Patent Owner, Petitioner's product was not publicly available prior to the publication of the application that led to the '973 patent in 2009 (the same year Patent Owner states it began “marketing

(discussing secondary considerations of nonobviousness without identifying commercial success as a relevant consideration).

and selling bed bug interceptors, such as the ClimbUp[®] Interceptor”). *Id.* at 7, 9. Patent Owner argues that the Hot Shot[®] Bed Bug Interceptor[™] packaging shows that Petitioner’s product “is designed for use under furniture legs” and promotes “Dual-Detection Zones.” *Id.* at 8. Patent Owner further explains the following:

The “dual-detection zones” statement confirms the discrimination feature of the intercepting device in the ’973 patent, which allows the user to determine the areas infested by bed bugs, has been copied by Petitioner in its Hot Shot[®] Bed Bug Interceptor[™] and is prominently promoted by the Petitioner on the packaging of its Hot Shot[®] Bed Bug Interceptor[™]. (Ex. 2004). In addition to boasting “Dual- Detection Zones” on the front and two sides of the packaging, the back side bearing the “Directions For Use” explains how bed bugs traveling down the furniture or bed leg from the bed end up in “the inner well of the Interceptors, unable to climb out,” and bed bugs traveling down the room walls end up in “the outer well of the Interceptors, unable to climb out.” The explanations are striking similar to the wording of the claims of the ’973 patent. Hence the areas or zones infested by the bed bugs and in need of treatment can be readily identified by simple observation of the bugs captured in the respective wells (or pitfall traps) of the interceptor exactly as disclosed in the ’973 patent.

PO Resp. 9. Thus, Patent Owner apparently reasons that the pictures of the packaging of Petitioner’s product “offers evidence of copying of the inventive feature allowing discrimination of the areas or zones of protection.” *Id.* at 10. Patent Owner provides no testimony or evidence other than a photo of the device on the packaging to show that the Hot Shot[®] Bed Bug Interceptor[™] practices any claim of the ’973 patent. Nor does Mr. Sorkin address the features of the Hot Shot[®] Bed Bug Interceptor[™] in his declaration. See Ex. 2001.

Petitioner argues that “copying requires the replication of a specific product,” which may be demonstrated through: (1) “internal documents”; (2) “direct evidence such as disassembling a patented prototype, photographing its features, and using the photograph as a blueprint to build a virtually identical replica”; or (3) “access to, and substantial similarity to, the patented product (as opposed to the patent).” Pet. Reply 43 (quoting *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1325 (Fed. Cir. 2004)).

We determine that Patent Owner’s evidence of copying is entitled to little, if any, weight in our obviousness analysis because there is insufficient evidence to establish that Petitioner’s Hot Shot® Bed Bug Interceptor™ practices any claim of the ’973 patent. More importantly, as Patent Owner explains, “copying requires the replication of a specific product,” which may be demonstrated through: (1) “internal documents”; (2) “direct evidence such as disassembling a patented prototype, photographing its features, and using the photograph as a blueprint to build a virtually identical replica”; or (3) “access to, and substantial similarity to, the patented product (as opposed to the patent).” Pet. Reply 43 (quoting *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1325 (Fed. Cir. 2004)). Even assuming both Patent Owner’s ClimbUp® Interceptor and Petitioner’s Hot Shot® Bed Bug Interceptor™ each practice the invention claimed by the ’973 patent, Patent Owner has provided no persuasive evidence of the type necessary to show copying as a secondary consideration of nonobviousness.

8. *Collective Consideration of the Graham Factors*

“Once all relevant facts are found, the ultimate legal determination [of obviousness] involves the weighing of the fact findings to conclude whether

the claimed combination would have been obvious to an ordinary artisan.” *Arctic Cat*, 876 F.3d 1350, 1361 (Fed. Cir. 2017). In weighing the facts here, the level of skill in the art does not favor either Petitioner’s or Patent Owner’s case. Neither party argues that the level of skill is either so high or low as to weigh in favor of their arguments as opposed to the other’s; nor do the parties argue that the level of skill specifically impacts our legal determination of obviousness in any specific manner. Turning to our findings regarding the scope and content of the prior art and the differences between the prior art and the claimed invention, we determine that they weigh in favor of Petitioner. For example, Petitioner has shown that Jennerich teaches virtually all of the elements of claim 1. The additional recitations of a “bait-free” receptacle and “a surface roughness which is slippery,” in the context of the well-known pit fall trap, does not significantly distinguish the claims of the ’973 patent and are features taught by Lyng and Jennings. We recognize Patent Owner’s strong conviction that “[t]he novel discrimination feature of the interceptor device is not taught by the prior art.” PO Resp. 3. The claims of the ’973 patent, however, are directed to an apparatus. Regardless of how novel the use that Patent Owner has identified for the apparatus may be, the issue of obviousness is controlled by the structural features of the apparatus, not on the ability of a person using the apparatus to discriminate between insects approaching and leaving the trap.

Further, to the extent the traps of Jennerich require modification in light of the “slippery” surface requirements, Petitioner has shown it would have been an obvious design choice and obvious improvement. Additionally, we find that Patent Owner’s objective indicia of licensing and

copying are entitled to little if any weight in favor of non-obviousness, for the reasons set forth above. Moreover, even if Petitioner copied the claimed invention (an assertion that Patent Owner's evidence does not establish), that circumstance would not outweigh the strong showing of obviousness made by Petitioner in this proceeding. *See Sud-Chemie, Inc. v. Multisorb Techs., Inc.*, 554 F.3d 1001, 1009 (Fed. Cir. 2009) (objective evidence of nonobviousness "will not necessarily overcome a strong . . . showing of obviousness").

On balance, based on the complete record before us, Petitioner has shown by a preponderance of the evidence that claims 1–17 of the '973 patent are unpatentable.

F. ASSERTED OBVIOUSNESS OVER ANDERSON, DEMPSTER, AND LANG

Petitioner contends that claims 1–3, 7, 10, 14, 16, and 17 of the '973 patent would have been obvious over Anderson, Dempster, and Lang. Pet. 38–47; Pet. Reply 22–35. Patent Owner disputes Petitioner's contentions. PO Resp. 39–53; PO Surreply 13–21.

Figure 3 of Anderson is reproduced again below.

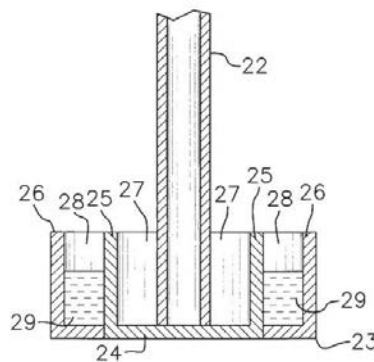


FIG. 3

Figure 3 illustrates a cross-sectional view of support leg 22 and moat cup 23 of protective pet dish 10. Ex. 1003, 3:49–52, 3:62–63, 4:55. Petitioner

identifies center space 27 and moat space 28 of Anderson as corresponding to the claimed bait-free first and second pitfall traps. Pet. 40–41. A comparison of Figures 1c and 2 of the '973 patent to Figure 3 of Anderson shows a striking similarity in many of the claimed structural components. Petitioner does not propose modifying the shape of center space 27 of Anderson. Rather, we understand Petitioner to argue that by its very shape, center space 27 is a pitfall trap.

Anderson is silent as to the material it is made of and silent as to the degree its surfaces are slippery. Petitioner argues that the outside of moat cup 23 corresponds to an upstanding, exterior climbable surface, as claimed. Pet. 39. Petitioner further asserts that “[t]o the extent that Anderson’s vertical peripheral surfaces were not already sufficiently ‘slippery,’ to meet” the claimed “upstanding peripheral surface that has a surface roughness which is slippery,” it would have been obvious to a person of ordinary skill in the art “to make the surfaces of Anderson’s trap with a surface roughness that is slippery, in view of Dempster.” *Id.* at 42. Petitioner reasons that such a modification would permit detection of insects trapped, as taught by Dempster and Lang. *Id.* at 42–43 (citing Ex. 1024, 1:10–19; Ex. 1008 ¶¶ 9, 10, 27, 28, 47).

Patent Owner argues, and we agree, that “Petitioner’s characterization of the inner ring wall 25 as being slippery and not climbable in order to define a trap while the outer wall 26 is intended by Anderson to be climbable presents a conflict in Petitioner’s thesis that is unexplained.” PO Resp. 47. Anderson makes clear that the apparatus it teaches “pertains to a new protective pet dish for preventing crawling insects from climbing into the pet dish.” Ex. 1003, 1:6–8. While we agree with Petitioner that, by the

structure disclosed, Anderson teaches center space 27 and moat space 28 corresponding to the claimed first and second pitfall traps, we are not persuaded that a person of ordinary skill would have had reason to make the interior surface of the upstanding peripheral surface defining center space 27 “slippery” merely to “permit detection of insects trapped,” while leaving the exterior surface climbable, as Petitioner contends.¹⁹ Presumably insects would have been trapped and detectable in existing moat space 28, and if Anderson seeks to prevent insect access to the pet food, providing a “climbable” exterior surface undermines that goal. Petitioner’s contentions become further strained in light of the recitation in claims 16 and 17 that the exterior climbable surface “slopes upwardly at an angle to vertical.” According to Petitioner, a person of ordinary skill “would have been motivated to adapt the device of Anderson to have a sloped exterior surface as disclosed in Dempster and Lang because such a surface makes it easier for bugs to climb into the trap.” Pet. 40. Petitioner does not explain why such a change would have been obvious to a person of ordinary skill given the focus Anderson places on keeping insects out of the pet feeding apparatus, not on detecting or trapping insects. Accordingly, Petitioner has

¹⁹ In its Reply, Petitioner argues for the first time that “[a] second rationale relates to the cost of manufacture.” Because this argument was not presented in the Petition it was waived. Even if we were to consider it, we would find it unpersuasive because it does not explain persuasively why one surface of the pet feeding dish of Anderson would be made slippery to save costs while the exterior surface of moat cup 23 would remain climbable.

not shown by a preponderance of the evidence that claims 1–3, 7, 10, 14, 16, and 17 would have been obvious over Anderson, Dempster, and Lang.

G. ASSERTED OBVIOUSNESS OVER ANDERSON, DEMPSTER,
LANG, AND LYNQ

Petitioner contends that claims 4–6, 10, 11, 14, and 15 would have been obvious over Anderson, Dempster, Lang, and Lyng. Pet. 47–51. These claims all depend from claim 1 and recite certain features related to surfaces of the trap. Petitioner contends, for example, that “Lang discloses that it is desirable to texture the exterior surface of the trap to facilitate bed bugs’ ability to climb into the trap,” and that Lyng discloses a trap with a ramp having a “tractionable surface” made of “roughened plastic.” Pet. 48 (citing Ex. 1008 ¶ 73, Ex. 1007 ¶ 26). Petitioner does not remedy all of the deficiencies identified above with respect to the alleged obviousness of claim 1 over Anderson, Dempster, and Lang. Accordingly, for the same reasons we find Petitioner has not shown by a preponderance of the evidence that claims 4–6, 10, 11, 14, and 15 would have been obvious over Anderson, Dempster, Lang, and Lyng.

H. ASSERTED OBVIOUSNESS OVER ANDERSON, DEMPSTER,
LANG, AND METCALFE

Petitioner contends that claims 8, 9, 12, and 13 would have been obvious over Anderson, Dempster, Lang, and Metcalfe. Pet. 51–52. These claims all depend from claim 1 and recite certain features related to the addition of a lubricating powder. Petitioner contends that Metcalfe, titled “Method and Apparatus for Controlling Pests,” teaches using powders to inhibit the ability of bugs to escape the trap. Pet. 51 (citing Ex. 1012, 1:38–40). Petitioner also reasons that it would have been obvious to use lubricating powder in the pitfall traps of Anderson, because, as Metcalfe

teaches, “such powder interferes with insects’ ability to climb inclined surfaces, causing them to fall into the trap and remain there.” Pet. 51–52 (citing Ex. 1022 ¶ 66).

Petitioner does not remedy the deficiencies identified above with respect to the alleged obviousness of claim 1 over Anderson, Dempster, and Lang. Accordingly, for the same reasons we find Petitioner has not shown by a preponderance of the evidence that claims 8, 9, 12, and 13 (which all depend from claim 1) would have been obvious over Anderson, Dempster, Lang, and Metcalfe.

I. ASSERTED OBVIOUSNESS OVER DENTON,
JENNERICH, AND MCKNIGHT ’812

Petitioner contends that claims 1–17 would have been obvious over Denton, Jennerich, and McKnight ’812. Pet. 52–66; Pet. Reply 37–39. Patent Owner disputes Petitioner’s contentions. PO Supp. Resp. 3–8; PO Surreply 21–23.

Petitioner provides an analysis of each element of independent claims 1 and 16 and identifies where it contends it is taught in Denton, Jennerich, and McKnight ’812. Pet. 52–59. Petitioner contends the center compartment B and trough D of Denton correspond to the claimed bait-free first and second pitfall traps. Pet. 54. Denton, however, as noted by Patent Owner, provides no written disclosure to suggest that central compartment B operates as a pitfall trap. See PO Supp. Resp. 5–6. To the contrary, Figure 2 of Denton, which Petitioner did not present in the Petition, illustrates compartment B fully occupied by furniture leg C. Denton also provides that objects without legs may be protected as well by resting them on the top of the compartment. Ex. 1004, 1:55–58. In both proposed uses, leg C and the

other objects prevent insects from entering compartment B, making clear that Denton did not contemplate compartment B to be a pitfall trap.

In reply, Petitioner argues that a person of ordinary skill in the art “would understand that the central compartment [B] in Denton should be large enough to accommodate legs of different diameters,” and that, for objects having smaller legs, central compartment [B] would not be fully occupied. Pet. Reply 38. Petitioner’s contention in this regard of what a person of ordinary skill would have known is unsupported by any cited testimony and was not made in the Petition. Moreover, even if used in a manner that allowed for space between a furniture leg and the walls of compartment B, Petitioner has not shown that such use necessarily would render compartment B a pitfall trap with slippery surfaces, as further explained below.

Petitioner argues that Denton teaches the use of smooth, hard materials for upstanding peripheral surfaces that correspond to the claimed “slippery” surfaces of claim 1 of the ’973 patent. Pet. 55. Yet, Petitioner also argues that Denton teaches “an upstanding, exterior climbable surface (exterior surface D) the bed bugs can climb.” *Id.* at 52. Petitioner does not persuasively explain how the materials Denton discloses it may be made of would simultaneously satisfy both the claimed exterior climbable surface and the claimed “slippery” surfaces of the alleged pitfall traps, or why compartment B would correspond to a second pitfall trap even if not fully occupied by a furniture leg.

Petitioner also contends that “[i]t would have been obvious to make the peripheral surfaces of the Denton trap slippery to prevent insects from escaping, as McKnight teaches.” *Id.* at 57 (citing Ex. 1022 ¶ 75). Petitioner

further contends that Jennerich discloses an exterior climbable surface, and that if such a feature were not disclosed by Denton, it would have been obvious to modify Denton to include it “to facilitate insects’ ability to climb the external surface into the trap.” Pet. 53. Petitioner further relies on Jennerich as teaching first and second pitfall traps, but does not explain adequately how Jennerich modifies Denton and what the resulting structure would include from each disclosure. *See, e.g.*, Pet. 54–55.

Petitioner reasons that it would have been obvious to a person of ordinary skill to modify the exterior surfaces of Denton to facilitate the ability of insects to climb into the trap, as taught by Jennerich and McKnight ’812, while the interior surfaces of Denton would be modified to be slippery to prevent insects from escaping, as also taught by Jennerich and McKnight ’812. Pet. 53, 56–57; *see also* Pet. Reply 38–39 (suggesting unpersuasively that Mr. Sorkin’s testimony concerning Anderson, a reference not at issue in this ground, provides the motivation for the asserted modifications). While it is apparent that one may be able to pull from all three references each feature of claims 1 and 16 of the ’973 patent, we are not persuaded that Petitioner has shown a sufficient rationale for doing so other than to reconstruct the trap disclosed in the ’973 patent based on impermissible hindsight because there is no convincing reason why a person of ordinary skill would have turned compartment B of Denton into a second pitfall trap based on the three asserted references. Mr. Sorkin’s testimony, which we find persuasive, explains as follows:

the entirety of Denton’s disclosure is focused on “preventing [insects’] passage from the floor to the furniture” (Ex. 1004, p. 2, 11, 37-38) and trapping insects falling in the moat D and not in the inner receptacle (B). (Ex. 1004, p. 2, 11. 17-19). Denton only describes receptacle (B) as being configured . . . to receive

a leg C of a safe or other object. (Ex. 1004, p. 1, ll. 31-33 and FIG. 2). Thus, there is no teaching or suggestion in the prior art to convert the receptacle (B) to be a trap for insects. Petitioner's conclusory assertion that it would have been obvious to modify Denton's inner peripheral surface bounding inner receptacle (B) appears to be purely based on hindsight reconstruction in order to read on the claims of the '973 patent.

Ex. 2001 ¶ 19. In his declaration Dr. Rotramel offers no further persuasive support for the asserted combination beyond what is set forth in the Petition, which we find insufficient. See Ex. 1022 ¶¶ 69–100. Accordingly, Petitioner has not shown by a preponderance of the evidence that independent claims 1 or 16 of the '973 patent, or claims 2–7, 10, 11, and 14–17 which depend from claim 1, would have been obvious over Denton, Jennerich, and McKnight '812.

J. ASSERTED OBVIOUSNESS OVER MCGRATH AND LYNQ

Petitioner contends that claims 1–7, 10, 11, and 14–17 would have been obvious over McGrath and Lyng. Pet. 66–76; Pet. Reply 39–40. Patent Owner disputes Petitioner's contentions. PO Supp. Resp. 9–12; PO Surreply 23.

Petitioner provides an analysis of each element of claims 1–7, 10, 11, and 14–17 and identifies where it contends it is taught in McGrath and Lyng. Pet. 66–76. In summary, Petitioner asserts that the pet feeding dish illustrated in McGrath teaches nearly all of the elements of independent claims 1 and 16, including first and second pitfall traps. *Id.* at 66–72. Petitioner contends that based on Lyng, it would have been obvious to make the exterior surface of McGrath bed bug climbable so that insects could access the trap, and also make the peripheral surfaces of the trap slippery to

prevent insects from escaping. *Id.* at 67, 69–70. Petitioner’s contentions are supported by Dr. Rotramel (Ex. 1022 ¶¶ 101–112), who further states:

A [person of ordinary skill] would have been motivated to make the peripheral surfaces of a trap “slippery” to prevent insects from escaping, and it would have been obvious for a [person of ordinary skill] to do so, given Lyng’s express teaching of materials and methods for making slippery surfaces and the rationale for doing so, including lowering the cost and ease of manufacture.

Id. ¶ 102.

Petitioner’s rationale is not persuasive because it does not explain why McGrath, which is titled “Pet Feeding Dish” and has no written description, would have been viewed by a person of ordinary skill as a device with first and second pitfall traps that would be beneficially modified by applying to it the teachings of Lyng. To the contrary, Patent Owner persuasively argues that turning McGrath into a bug trap with two receptacles would interfere with McGrath’s pet feeding function (based on the title of McGrath).

PO Supp. Resp. 10–11 (citing Ex. 2001 ¶ 23). Mr. Sorkin explains as follows:

Since the device is entitled “Pet Feeding Dish,” a [person of ordinary skill] might conclude that the inner cavity is configured for retaining food for a pet, while the outer receptacle is configured to retain water in order to function as a peripheral moat surrounding the pet’s food retained in the inner receptacle. As such, even in view of Lyng, a [person of ordinary skill] would not modify the peripheral surface bounding the inner cavity retaining food for a pet to be slippery. At best, that modification would prevent bugs from climbing out of the inner cavity and confine them with the pet food. A [person of ordinary skill] would not be motivated to retain bugs in the cavity with the pet’s food.

Ex. 2001 ¶ 23.

Petitioner argues in Reply that it need only show that the pet feeding dish of McGrath would have been capable of performing the functions recited by the '973 patent, and that a person of ordinary skill would have been motivated to apply Lyng to McGrath based on Lyng's teaching that "for cost and ease of manufacture reasons, the interior surfaces of an insect trap could be made from 'slippery' plastics and polymers, which would prevent insects from escaping the trap." Pet. Reply 40 (citing Ex. 1035, 102:23–105:21, 117:3–119:16, 149:13–21). Petitioner's analysis is not persuasive because Petitioner identifies no reason a person of ordinary skill would have sought to modify McGrath to create a bug trap with two receptacles without relying on the '973 patent as a roadmap. Petitioner's reasoning for modifying McGrath appears to be based on nothing more than an attempt to reconstruct the trap described in the '973 patent, and provides no persuasive reason for doing so other than hindsight. *See KSR*, 550 U.S. at 421 ("A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon ex post reasoning."); *see also Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017) ("[W]e cannot allow hindsight bias to be the thread that stitches together prior art patches into something that is the claimed invention."). Accordingly, Petitioner has not demonstrated by a preponderance of the evidence that independent claims 1 or 16 of the '973 patent, or claims 2–7, 10, 11, and 14–17 which depend from claim 1, would have been obvious over McGrath and Lyng.

IV. PATENT OWNER'S MOTION TO AMEND

Patent Owner filed a motion to amend claims 1 and 16 in the event they are found to be unpatentable. Mot. Amend 1. More particularly, the motion is premised on the rejection of Patent Owner's claim construction for "climbing out," not more broadly on whether claims 1 and 16 are found unpatentable. Patent Owner explains that "claims 1 and 16 as they were issued demand an interpretation that the inner and outer peripheral surfaces are slippery to prevent bed bugs from climbing out of the outer receptacle."

Id. at 4. Patent Owner further states that:

Despite Patent Owner's belief that the claim construction should not differ between the issued claims and the proposed substitute claims, Patent Owner nevertheless submits this Motion to Amend in an abundance of caution in order to make the above interpretation explicit in the proposed substitute independent claims 1 and 16 *in the event that the Board finds independent claims 1 and 16 could be interpreted differently*.

Id. at 5 (emphasis added).

Specifically, Patent Owner proposes amending claim 1 to add the additional language emphasized as follows: "wherein the outer receptacle includes upstanding inner and outer peripheral surfaces . . . that each have a surface roughness which is slippery to prevent bed bugs from climbing out *of the outer receptacle*." *Id.* at 9. Similarly, Patent Owner proposes amending claim 16 to add the additional language emphasized as follows: "wherein the inner peripheral surface and the outer peripheral surface of the outer receptacle each have a surface roughness which is slippery to prevent bed bugs in the outer receptacle from climbing *out of the outer receptacle*." *Id.* at 12–13.

Petitioner contends the proposed amendment should be denied as unnecessary and unresponsive to a ground of unpatentability. Opp. Mot. Amend 1. Petitioner reasons that the claim language as issued makes clear that “climbing out” in conjunction with the outer receptacle means “climbing out of the outer receptacle..” *Id.* at 1–2.

In short, Petitioner agrees with Patent Owner’s proposed construction of “climbing out” to require “climbing out of the outer receptacle.” *See* Tr. 14:5–15:9. Further, we adopted Patent Owner’s proposed construction for purposes of this Decision. *See supra* III.C.2. As a result, although we find claims 1 and 16 to have been shown to be unpatentable, in reaching that conclusion we adopted Patent Owner’s proposed claim construction and the proposed claim amendments would not lead to a different result. Accordingly, the Motion to Amend is denied as unnecessary and unresponsive to a ground of unpatentability.

V. CONCLUSION

Based on the evidence and arguments, Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claims 1–17 of the ’973 patent would have been obvious over Jennerich, Lyng, and Jennings. Petitioner has not shown by a preponderance of the evidence that the subject matter of any of the challenged claims of the ’973 patent would have been obvious over any of the other asserted combinations of prior art.

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Patent Owner’s Motion to Amend is *denied*;

ORDERED that claims 1–17 of U.S. Patent No. 9,253,973 B2 *have* been shown to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written 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.

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