

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

GUANGZHO EKO TRADING DEVELOPMENT CO., LTD.,
Petitioner,
v.
NINE STARS GROUP (U.S.A.) INC.,
Patent Owner.

Case No. IPR2025-01191
U.S. Patent No. 10,822,165 B2

PETITIONER'S REPLY

TABLE OF CONTENTS

I.	Introduction.....	1
II.	Argument	2
A.	The Wang Reference Is Enabled	2
1.	Patent Owner Ignores the Law.....	2
2.	Patent Owner Failed to Meet its Burden of Production.....	4
3.	A POSITA Would Have Readily Been Able to Achieve a “Waterproof” Container Following Wang’s Teachings	7
B.	Wang Anticipates the Claimed Subject Matter	13
C.	Wang Also Renders the Claims Obvious	20
D.	Petitioner’s Expert is Qualified	21
III.	Conclusion	26

LISTING OF EXHIBITS

Exhibit	Description
1001	U.S. Patent No. 10,822,162 B2 to Wang et al.
1002	File History of U.S. App. 15/271,211
1003	File History of U.S. App. 15/884,342
1004	CN 203740427U to Wang et al.
1005	Certified translation of CN 203740427U to Wang et al. and associated translator's declaration
1006	Declaration of Steven C. Visser
1007	U.S. Pub. No. 2002/0190615 A1 to Lin
1008	U.S. Pub. No. 2008/0084647 A1 to Wang et al.
1009	U.S. Pub. No. 2014/0238986 A1 to Crawford et al.
1010	WO 2016/040601 A1 to Howard et al.
1011	U.S. Pub. No. 2009/0194532 A1 to Yang et al.
1012	WO 02/070849 A1 to Winter
1013	Reply Declaration of Steven C. Visser
1014	U.S. Patent No. 6,311,017 B1 to Mori
1015	U.S. Patent No. 6,819,866 B2 to Da Silva
1016	U.S. Patent No. 7,913,871 B2 to Fisher
1017	U.S. Patent No. 9,033,176 B2 to Liistro et al.
1018	U.S. Patent No. 9,437,962 B2 to Liu et al.

I. INTRODUCTION

Petitioner Guangzhou EKO Trading Development Co., Ltd. (“EKO” or “Petitioner”) submits this reply to Patent Owner’s Response (Paper 25).

As explained in the Petition, Wang (Ex. 1005) discloses a waterproof automatically opening trashcan that is virtually identical to that in the ’165 patent. This makes Wang anticipatory (or at minimum renders the claims obvious).

Apparently recognizing that there is no distinction between Wang and the ’165 patent claims, Patent Owner tries to differentiate Wang from the ’165 patent’s specification and figures. But it is the claims that control. Minor specification and figure differences are of no relevance. And Patent Owner should not be allowed to import claim limitations from the specification to distinguish Wang.

Patent Owner first tries to leverage the specification and figures by arguing that Wang is purportedly “non-enabled.” Citing declarations signed by the ’165 patent’s two named inventors, Patent Owner characterizes Wang as a non-working “early conceptual arrangement” that purportedly lacked certain features needed for waterproofing. But inventor declarations are irrelevant to the issue of enablement: all that matters is whether a POSITA would have been able to implement the claims without undue experimentation. Patent Owner points to no such evidence. Moreover, this entire argument strains credulity. The ’165 patent’s claims are directed to a trashcan, not a rocket ship. A prior art reference that depicts the same

trashcan in its figures and repeatedly says that trashcan is waterproof—as Wang does here—is plainly enabled. This is particularly the case when the prior art is replete with straightforward and well-known methods to waterproof containers.

The rest of Patent Owner’s arguments are no different. It repeatedly faults Wang for not repeating the claim language verbatim, not including identical labeled elements, or not including unclaimed details from the ’165 patent. These points are irrelevant. All that matters is whether Wang teaches or renders obvious the *claimed* subject matter. The Petition indisputably established that it does.

II. ARGUMENT

A. The Wang Reference Is Enabled

Patent Owner’s non-enablement argument misapplies the law and lacks factual support.

1. *Patent Owner Ignores the Law*

The central premise of Patent Owner’s argument is that the ’165 patent includes a small number of additional details not explicitly set forth in Wang. According to Patent Owner, Wang represents “an early conceptual arrangement of components without addressing the structural challenges associated with waterproof protection.” Response, 11. In supposed contrast to Wang, the ’165 patent includes “critical structural elements that enable” this “waterproof functionality” *Id.*, 2, 25. As examples, Patent Owner points to the ’165 patent’s “sealing channel 342” and “sealing element 343” in Figure 5, separate labeling of a shaft “end portion 411,”

and inclusion of an additional “exposed view” in Figure 4. *Id.*, 25-31. Patent Owner also cites declarations signed by the ’165 patent’s two named inventors. These declarations allege that “design disclosed in” Wang “was not suitable for commercial production because the structure allowed moisture and contaminants to enter areas containing electrical components.” *Id.*, 9-10; *see also* Exs. 2002-2003. The inventors then argue that only through their “continued ... research” were they able to develop the “improved waterproof architecture disclosed in the ’165 patent.” *Id.*, 9-10.

This amounts to nothing more than an improper attempt to fault Wang because it does not repeat every single detail—including unclaimed subject matter—set forth in the ’165 patent. There is no such requirement. Only the *claimed* subject matter must be disclosed. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007) (“[w]hat matters is the objective reach of the claim”). Moreover, while it is true that a prior art reference must be enabled, it is not necessary to “enable the challenged claim in its entirety.” *Agilent Techs., Inc. v. Synthego Corp.*, 139 F.4th 1319, 1327 (Fed. Cir. 2025). Instead, the reference “need only enable a single embodiment.” *Id.* This is what Wang does. It details one example of the claimed waterproof container. Patent Owner’s arguments—which focus on a specification-to-specification comparison—are irrelevant.

Next, Patent Owner’s enablement argument improperly imposes performance requirements on Wang. The ’165 patent’s claims simply reference a “waterproof induction container.” They do not require any specific level of performance, let alone performance identical to that purportedly achieved by the ’165 patent’s working embodiment. Nor is proof of performance required for Wang to be enabled. The enablement standards are different for an issued patent and prior art. *Rasmusson v. SmithKline Beecham Corp.*, 413 F.3d 1318, 1325 (Fed. Cir. 2005). And prior art is enabled regardless of whether it demonstrates “actual performance of suggestions in a disclosure.” *Bristol-Myers Squibb Co v. Ben Venue Labs, Inv.*, 246 F.3d 1368, 1379 (Fed. Cir. 2001); *Agilent Techs.*, 139 F.4th at 1327 (“proof of efficacy is not required”). So, to be enabled Wang simply has to state that it is waterproof. It does not need to prove or test this assertion. This is exactly what Wang does: it details the structure of its trashcan and repeatedly explains that this structure renders it waterproof. Wang, [0001] (container “waterproof”), [0003] (noting “good waterproof, moisture-proof, and corrosion-proof performance”), [0008], [0018] (similar).

2. Patent Owner Failed to Meet its Burden of Production

Next, when a prior art reference discloses all the limits of a claim, it is presumed to be enabling. *In re Antor Media Corp.*, 689 F.3d 1282, 1287-89 (Fed. Cir. 2012). The Petition explained—and the Board agreed when instituting—that

Wang teaches the claimed subject matter. *See* Paper 8 (Institution Decision), 20-33. This gave rise to a presumption of enablement. It also imposed a burden of production on Patent Owner: it was required to produce evidence supporting its non-enablement arguments. *In re Antor Media Corp.*, 689 F.3d at 1289 (noting that “the burden shifts to” a patent owner “to submit rebuttal evidence of non-enablement”).

Patent Owner has not met this burden of production. The Response relies only on (1) unsupported attorney argument and (2) inventor declarations. Neither is sufficient. “[A]ttorney argument is not evidence.” *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017); *see also Parkervision, Inc. v. Vidal*, 88 F.4th 969, 982 (Fed. Cir. 2023) (“attorney argument ... fails to undermine the evidence” from the prior art and petitioner’s expert). Patent Owner’s two inventor declarations are no better. The declarations, which are substantively identical, merely discuss the inventors’ efforts to address supposed “reliability concerns” with the trashcan discussed in Wang. Ex. 2002, ¶¶ 11-12; Ex. 2003, ¶¶ 11-12. The declarations then go on to list a handful of specific design details that appear to relate to the trashcan embodiment discussed in the ’165 patent’s specification, including its “sealing and isolation structure,” specific “shaft-sleeve structure,” and “balanced arrangement.” *Id.*, ¶¶ 12-25. None of this is required by the ’165 patent’s claims. Thus, the declarations do not bear on whether the *claimed* trashcan is enabled by Wang. Moreover, whether the inventors themselves had

difficulty making what they considered an adequately reliable commercial product provides no insight into whether a POSITA would have been able to achieve the claimed subject matter following Wang.¹ *SRAM Corp. v. AD-II Eng'g, Inc.*, 367 Fed. Appx. 150, 157 (Fed. Cir. 2010) (unpublished) (“[t]he question ... is not whether the inventor built or could have built an operative model of the device”); *Schering Corp. v. Geneva Pharms., Inc.*, 339 F.3d 1373, 1380 (Fed. Cir. 2003) (prior art reference may be enabling “even if ... inventor did not actually make or reduce to practice [the disclosed] subject matter”); *see also* Ex. 1013, ¶¶ 57-61.

The factors listed in *in re Wands* are typically considered when assessing whether a prior art reference is enabled. *Agilent Techs.*, 139 F.4th at 1327 (citing *In re Wands*, 858 F.2d 731 (Fed. Cir. 1988)). These factors focus on whether “undue experimentation” is required to practice the prior art’s subject. *In re Wands*, 858 F.2d at 737. Patent Owner addressed none of the *Wands* factors. It also presented no expert testimony or other evidence that even remotely indicates that any experimentation at all (let alone undue experimentation) would be required to

¹ Neither declarant provides any educational or work experience information. Thus, it is impossible to determine whether they satisfy either Patent Owner’s or Petitioner’s POSITA definitions.

implement Wang. Thus, it has not overcome the presumption of enablement applicable to Wang.

3. *A POSITA Would Have Readily Been Able to Achieve a “Waterproof” Container Following Wang’s Teachings*

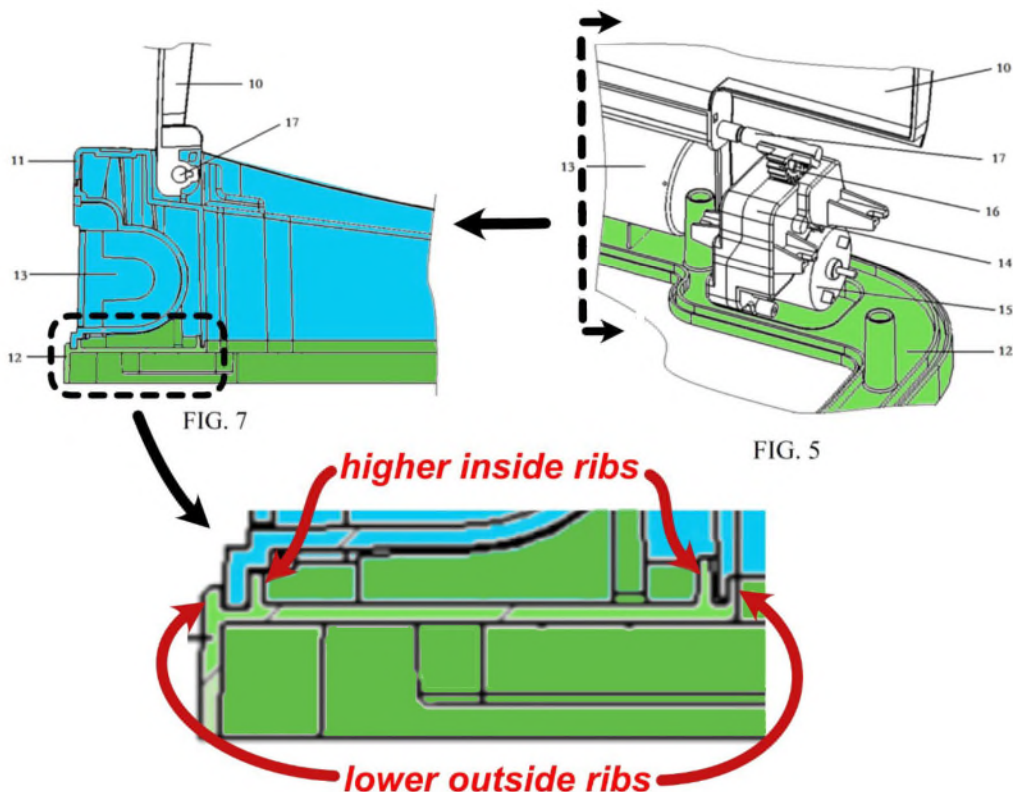
Patent Owner’s arguments also lack support in the facts. While Patent Owner characterizes the ’165 patent as including “further ... structural sealing elements and protective shaft sleeve structures” supposedly not present in Wang (Response, 25), the patent does not actually include any additional meaningful detail. The patent does reference a “sealing element 343” that is “disposed along” a “sealing channel 342.” ’165 patent, 5:65-67. But it says nothing else. No discussion of the seal’s size, its structure, or the material employed is provided. Likewise, the patent makes generic reference to a “shaft sleeve 421,” but once again provides no further information. *Id.*, 6:19-25. Simply making generic references to components does not reduce the amount of experimentation needed to make and use the described subject matter. The ’165 patent leaves it up to a POSITA to fill in these (and other) missing details. If this can be done for the ’165 patent, it can also be done for the prior art.

Next, Patent Owner improperly minimizes and fails to account for the totality of Wang’s disclosure. Wang repeatedly emphasizes that its trashcan is meant to provide “good waterproof, moisture-proof, and corrosion-proof performance.”

Wang, [0004], [0008], [0018]; *see also id.*, Title (referencing a “[w]aterproof sensing trashcan”); Abstract, [0001] (similar).

Moreover, not only does Wang say that its trashcan is waterproof, but it both explains in text and depicts in figures how this is achieved. According to Wang, the trashcan is rendered waterproof because the “transmission component, power supply component, and ... control component are all wrapped in isolation space” such that they are “completely isolated from a garbage storage portion of the trashcan.” *Id.*, [0008]. More specifically, Wang’s sensitive components are all “disposed in an inner cavity formed” between a “middle body seat” and “annular covering housing” that are “buckled” together to “wrap[]” the components and “isolate[]” them “from the garbage storage space.” *Id.*, [0018]. In other words, sensitive components are located within a housing that is secured to prevent moisture and contamination incursion.

This is depicted in multiple figures, including Figure 3 (depicting the assembled middle body seat and covering housing) and Figures 4-5, 7 (depicting the interior space between the seat and housing). *Id.*, Figs. 3-7. As shown, Wang’s middle body seat 12 (green) includes grooves with ribs that interface with tongues on its annular covering housing 11 (blue). This interface—along with the fact that the ribs are formed higher inside the structure—inhibits water incursion:



Id., Figs. 5, 7 (annotated); *see also* Ex. 1013, ¶¶ 13-17, 21-23; *see also id.*, ¶¶ 18-20 (noting that Wang’s housing is secured with bosses). A POSITA would have been more than capable of using this to design a trashcan with adequate waterproofing without undue experimentation. *See id.*

While Wang itself is sufficient (as it depicts and describes a waterproof trashcan), the art is also replete with example methods that would have been readily employable to achieve a greater level of waterproofing if desired. “[W]aterproof housings” that protect electronic “sub-assemblies” were “well known” long before the ’165 patent was filed. Ex. 1014, 1:8-12; *see also* 4:2-9 (noting that a wide range of devices can be protected by a waterproof housing). For example, it was known

that a “conventional” “glass, acrylic, plastic” container with “seals” allows “[w]ater and other materials” to be “kept out of” the container. *Id.*, 2:7-12. It was also known that such a seal can be in the form of a “waterproof seal member” “located in the exterior periphery of an inner portion ... of” a container housing “cover ... to maintain the watertight state of the waterproof housing” just as in the ’165 patent’s own example. *Id.*, 7:64-67. Similarly, a “waterproof housing[]” can be achieved via the use of a “gasket” located in a “gasket channel” that “circumscribes the exterior surface” of the housing. Ex. 1018, 1:18-22, 1:50-61. The gasket can be “an O-ring constructed from a suitable elastomer material.” *Id.*, 2:20-21. This same method had even been used to waterproof trashcans. Ex. 1016, 1:18-25 (referencing “storage containers” such as “garbage cans”), 10:58-67 (container is rendered “water proof” via its use of a “seal known in the art, including an O-ring, a gasket, and the like” that is “attached” to the container’s “lid” or “base”).

Other waterproofing methods were also known and in routine use. This includes use of “potting compound” in gaps or holes (Ex. 1015, 9:24-32), “male/female” “interlocked” rim components (Ex. 1017, 9:55-60, 10:11-16), a “sealing surface” like “tape” (*id.*, 8:16-18), or a “thermo-form flange or other compression molding mechanism” (*id.*, 8:21-24). A POSITA would not only have known of these waterproofing methods but would have considered them to be readily applicable to Wang. Ex. 1013, ¶¶ 24-28. As these types of waterproofing methods

were already intended for use with consumer products—including trashcans—next to no experimentation would have been required to employ them with Wang. *Id.*, ¶¶ 38-40. Indeed, a POSITA would have recognized that applying a gasket, flange, or tape to Wang’s housing amounts to little more than routine work. *Id.*, ¶¶ 41. Likewise, forming Wang’s upper and lower housing components such that they interlock would require little (if any) effort. *Id.*, ¶ 42.

The *Wands* factors provide further confirmation that Wang is enabled and would not require undue experimentation to implement. Wang is clear, the art is comprehensive and robust, and the claimed subject matter is straightforward. Each factor is discussed in greater detail below:

Quantity of experimentation necessary: No meaningful experimentation would be required to implement Wang. Wang already includes drawings of its trashcan. And the art is replete with known, straightforward, and implementable methods to improve the waterproofing of Wang’s can if desired. *Id.*, ¶¶ 12-43.

Amount of direction or guidance: Wang provides significant guidance: it both describes its trashcan in words and depicts it in multiple figures. *Id.*, ¶¶ 44-45.

Presence of working examples: Wang includes a complete working example of its trashcan. *Id.*, ¶ 46.

Nature of the invention: Wang and the '165 patent are both directed to trashcans. This is a straightforward technical field that was well-developed as of the '165 patent's filing in 2016. *Id.*, ¶ 47.

State of the prior art: As of 2016, automatically opening trashcans like that disclosed by Wang were well known. *E.g.*, '165 patent, 1:35-66. The art was also replete with structures used to waterproof containers, including containers intended to hold trash. Ex. 1013, ¶¶ 48-50.

Relative skill of those in the art: The parties do not dispute that a POSITA would have had at least a moderate level of skill, including a technical college degree and experience designing consumer products. Ex. 1006, ¶ 57; Response, 16. This POSITA would have been more than capable of following Wang's disclosure (along with that in related prior art) for purposes of developing a waterproof trashcan. Ex. 1013, ¶¶ 51-53. A POSITA possessing the greater level of skill and knowledge required by Patent Owner's definition would have even less difficulty.

Predictability of the art: Trashcan technology is not complex and is entirely predictable. The functionality of a trashcan like that in Wang is apparent from its structure. And a POSITA would also have immediately recognized that adding seals, tape, gaskets, or interlocking mating structures would have rendered such a can more waterproof. *Id.*, ¶¶ 54-55.

Breadth of the claims: The '165 patent's claims are broad. They embrace a variety of waterproof containers and are not limited to the specific trashcan shown in the patent's figures. *Id.*, ¶ 56.

B. Wang Anticipates the Claimed Subject Matter

Patent Owner's attempts to substantively distinguish Wang from the claims also lack merit. According to Patent Owner, Wang cannot be anticipatory because it purportedly "does not provide waterproof protection because moisture and contaminants may readily enter the cavity through structural openings associated with the pivot shaft and lid assembly." Response, 24. The claims, however, do not require a "moisture" or "contaminant" "proof" trashcan. '165 patent, claim 1. Moreover, Wang's actual disclosure contradicts Patent Owner's argument. Wang repeatedly states that its trashcan does provide "good waterproof, moisture-proof, and corrosion-proof performance." Wang, [0004], [0008], [0018]; *see also* Title, Abstract, [0001]. This is part of the reference and cannot simply be ignored or negated as Patent Owner proposes here. *Homeland Housewares, LLC v. Whirlpool Corp.*, 865 F.3d 1372, 1378 (Fed. Cir. 2012) (rejecting an interpretation of the prior art that was "plainly inconsistent with the record").

Patent Owner next alleges that Wang cannot anticipate because it purportedly does not "disclose the structural configuration of the '165 patent." Response, 24. All of this, however, focuses exclusively on purported differences between Wang

and the trashcan embodiments disclosed in the specification and drawings of the '165 patent. For example, Patent Owner faults Wang because it does not reference or depict the same “sealing channel 342,” “sealing element 343,” or shaft “end portion 411” that the '165 patent does in Figure 5, or include the “exposed view” provided by Figure 4. *Id.*, 24-28; *see also* 51-55 (listing various “structural elements” supposedly missing from Wang). Similarly, Patent Owner faults Wang for not “describ[ing] any sealing structures surrounding the cavity or any mechanism for preventing moisture from entering the cavity.” *Id.*, 32. And Wang purportedly lacks “protective sleeve structures for the pivot shaft or any structural configuration that isolates the pivot shaft region from the container interior.” *Id.*

However, none of this is recited in the claims of the '165 patent. The claims do not require the same sealing channel or sealing element referenced in the '165 patent's specification. The claims also do not require any particular “end portion” design, let alone one identical to that in Figure 5. And an “exposed view” like Figure 4 is not required to show that Wang teaches everything the claims require. Likewise, the claims do not require “sealing structures surrounding the cavity,” any particular “mechanism for preventing moisture from entering,” “protective sleeve structures,” or any specific shaft “structural configuration.” Patent Owner is improperly attempting to read limits from the specification into the claims.

The focus of an anticipation analysis is—and must remain on—the claims. *Schering Corp. v. Geneva Pharms.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) (anticipation requires comparison of the prior art to the “claimed invention”). A prior art reference does not need to reproduce a patent’s specification and figures to be anticipatory. Nor is it required to be identical to the patent’s working embodiment. Here, Wang teaches what the claims require. *See* Petition, 17-50. It teaches a waterproof trash container, side concealed compartments, and a pivot shaft that extends into these compartments. *Id.*

Not only does Patent Owner improperly ignore the claims, but it repeatedly mischaracterizes Wang’s disclosure. Wang is not “silent” regarding its use of a “side concealed compartment.” Response, 26, 30. Instead, it specifically says (and depicts in its figures) its opening and closing components are wrapped and isolated within “an inner cavity” formed by Wang’s body seat 12 and annular covering housing 11. *E.g.*, Wang, [0018]; Figs. 3, 4, 5. Similarly, Wang is not “silent” about the “end portion” of its trashcan’s pivoting shaft. Response, 27. Instead, it states that the shaft has “two ends” that “extend into inner cavities of the annular covering housing 11....” Wang, [0018]. Wang also depicts its shaft as having a non-circular cross section that interfaces with the cover. *Id.*, Fig. 7. Further, it is not the case that Wang “does not disclose” what is shown in Figure 8 of the ’165 patent. Response, 30. While Wang does not include a figure identical to Figure 8, it nonetheless

explains that its container includes a “torsion spring 18” to facilitate the lifting of the container’s lid. Wang, [0022].

Patent Owner concludes its discussion of anticipation with a long listing of claim elements purportedly missing from Wang. Response, 35-47. This—like the rest of Patent Owner’s response—fails to rebut the Petition’s showing. First, Patent Owner appears to do little more here than note (repeatedly) that Wang does not use the exact same wording as the claims. But anticipation is “not an ‘*ipsisssimis verbis*’ test.” *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). The prior art “need not disclose” required claim “elements in the very same terms used by the patent.” *Adasa Inc. v. Avery Dennison Corp.*, 55 F.4th 900, 910 (Fed. Cir. 2022). Thus, whether the ’165 patent’s claim language appears verbatim in Wang is of no importance. Second, Patent Owner limits itself to bald, conclusory, and unsupported denials. It fails to even discuss the disclosure in Wang cited in the Petition. And it certainly does not explain why that disclosure does not satisfy the claims. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (P.T.A.B. Aug. 22, 2022) (precedential) (“conclusory assertion[s]” are “entitled to little weight”).

Each limitation (or dependent claim) addressed by Patent Owner in this portion of the Response is discussed below:

“First and second side concealed compartments.” According to Patent Owner, Wang lacks “two separate side concealed compartments” that are “protected

from moisture or contaminants.” Response, 38. Wang says the opposite: it includes “inner cavities” located towards the rear of its housing. Wang, [0018]; Figs. 3, 4. The cavities “isolate” the components within from the outside providing “waterproof, moisture-proof, and corrosion proof performance.” *Id.*; *see also* Petition, 21-23.

“Waterproof manner.” According to Patent Owner, Wang lacks “waterproof sealing structures.” Response, 39. Wang, however, expressly (and repeatedly) characterizes its trashcan as “waterproof.” Wang, Abstract, Title, [0002]-[0003], [0008], [0018], [0020].

“Pivot shaft configuration.” Patent Owner argues that Wang lacks a “shaft [that] extends into any concealed compartment.” Response, 40. Not so. Wang explicitly states that the “two ends” of its “rotating shaft 17 extend into inner cavities of the annular covering housing 11....” Wang, [0018]; *see also* Petition, 22-25.

“Automatic driving arrangement.” Here, Patent Owner simply repeats its argument that Wang somehow fails to teach “waterproof isolation of the actuation unit.” Response, 41. But Wang unambiguously states that its “sensing opening-closing apparatus has good waterproof, moisture-proof, and corrosion resistance performance” because it is “wrapped” in the trashcan’s housing. Wang, [0018]; *see also* Petition, 28-31.

“Element arranged to initially push up the cover.” According to Patent Owner, Wang “does not describe a resilient element configured to assist the opening movement of the lid.” Response, 41-42. Wang, however, includes a “torsion spring” allowing the container cover to open with “a relatively small power.” Wang, [0022]; *see also* Petition, 31.

Dependent claims 2-4. While Patent Owner recognizes that Wang includes a “motor and transmission mechanism,” it once again discounts Wang because it purportedly does not teach “waterproof isolation.” Response, 42-43. As explained above, Wang does include such a teaching: its components are rendered waterproof by its housing. Patent Owner also alleges that Wang lacks a “gear worm sector affixed to the pivot shaft” and a “decelerating gear unit.” *Id.*, 43. As explained in the Petition, however, Wang employs the same “sector gear” as the ’165 patent. *See* Petition, 36-37 (citing Wang, [0004], [0018].) The Petition also noted that Wang includes a “gear reducer 15” that “reduces a speed” of the cover. *Id.*, 37-38 (citing Wang, [0021], [0023]).) Patent Owner addressed none of this.

Dependent claims 6-8. Here, Patent Owner argues that Wang does not include a “lower base frame and an upper casing” or a “battery compartment formed within the rear portion of the control housing.” Response, 43-44. Patent Owner is once again wrong. Wang explains that its container includes an “upper can body 1” formed from an “annular middle body seat 12” and an upper “annular covering

housing 11” that cooperate to form waterproof “inner cavities.” Wang, [0018]; Figs. 3-4. Wang also explains that the container not only includes a “battery box,” but locates the opening of this box “on a rear side surface of the annular covering housing.” *Id.*, [0020]. The battery box is also depicted at the housing rear in Wang’s figures. *Id.*, 3-4, 7; *see also* Petition, 40-43.

Dependent claims 9, 12, 15. Patent Owner argues (again) that Wang lacks a “resilient element.” Response, 44-45. As noted above, Wang includes a “torsion spring.” Wang, [0022].

Claims 10, 13, and 24. According to Patent Owner, Wang supposedly lacks a “front concealed compartment.” Response, 45-46. The Petition, however, explained that Wang references (and shows in its Figures) an inner (and thus concealed) cavity located in the front portion of its housing. *See* Petition, 45-46 (citing Wang, [0018]-[0019], Figs. 3-4).

Dependent claims 5 and 11. Patent Owner disputes that Wang includes an “upper casing sealed and coupled at the lower base frame to define” “side concealed compartments.” Response, 46. Patent Owner is wrong again. Wang explains that its “annular covering housing 11” is “buckled” onto its “middle body seat 12” to form a concealed “inner cavity” that is “waterproof.” Wang, [0018]; *see also* Petition, 38-39.

Dependent claims 17, 19, and 21. Patent Owner argues that Wang lacks a “shaft sleeve.” Response, 46-47. Wang, however, depicts such a sleeve in its figures. Wang, Figs. 3-4, 7; *see also* Petition, 47-49.

Dependent claims 18, 20, and 22. According to Patent Owner, Wang lacks a shaft with a “non-circular cross section.” Response, 47. But the Petition explained—with an annotated figure—why Wang includes a non-circular shaft. *See* Petition, 49-50 (citing Wang, Fig. 7).

C. Wang Also Renders the Claims Obvious

The Petition also included a second ground noting that even if not anticipated, the ’165 patent’s claims would have been obvious over Wang. *See* Petition, 50-59. Patent Owner does not appear to dispute that all the ’165 patent’s claim limitations are at least separately disclosed in the prior art. Instead, it merely faults the Petition for purportedly “fail[ing] to establish a motivation to modify” Wang. Response, 34.

To begin, Patent Owner mischaracterizes the Petition: the Petition did not “modify” Wang. Instead, it explained that a POSITA would have considered Wang to obviously disclose what the claims require. Evidence of a motivation to “modify” was not required, as no modification was proposed. *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1372-73 (Fed. Cir. 2019) (no “finding regarding a motivation to combine” is required when a single reference discloses the claims); *Gen. Elec. Co. v. Raytheon Tech. Corp.*, 983 F.3d 1334, 1352 (Fed. Cir. 2020) (it is not necessary to

“explain why an artisan would be motivated to use each element” already disclosed in the prior art). Here, Wang itself already discloses and renders obvious a trashcan with waterproof, sealed compartments that protect the motor, mechanical parts, sensors, and other components disposed therein.

In any event, the Petition *did* provide extensive evidence regarding why a POSITA would have been motivated to implement Wang in the manner claimed. Among other things, the Petition explained why a POSITA would have used an automatic drive arrangement, pivotably moving cover, servo motor, gear worm sector, hydraulic cover movement, detachable battery cover, and non-circular shaft. *See* Petition, 52-59. This was supported by both expert testimony and other prior art showing that these features were well-known and in routine use in the prior art. *See generally id.* Once again, Patent Owner addressed none of the Petition’s arguments or evidence. Instead, it limited itself to a bald, unsupported denial. This does not show non-obviousness. *Xerox*, IPR2022-00624, Paper 9 at 15.

D. Petitioner’s Expert is Qualified

In addition to addressing Wang, Patent Owner challenges the qualifications of Petitioner’s expert (Dr. Steven Visser). According to Patent Owner, Dr. Visser “lacks the technical expertise necessary to provide reliable expert testimony.” Response, 17. This gets the law and facts wrong and invites error.

To begin, Patent Owner failed to depose Dr. Visser. It has no real insight into his academic background and design experience. Thus, it does little more than baldly deny that he is qualified. This bald denial is also premised on a misunderstanding of the '165 patent. According to Patent Owner, the Board should “accord[] little or no weight” to Dr. Visser’s testimony because he purportedly lacks experience with the “engineering, manufacturing, or development of electromechanical systems such as induction-actuated trash containers.” *Id.* Patent Owner posits that this type of experience is not only necessary to qualify as an expert in the '165 patent’s technical field but would have been possessed by a POSITA. *Id.*, 16. Per Patent Owner, a POSITA (and expert) “would have several years of experience designing or manufacturing automatic induction-actuated trash containers or similar electromechanical consumer appliances.” *Id.* Patent Owner further requires that a POSITA also possess knowledge regarding “sensor-based control systems, electric motor actuation mechanisms, gear reduction systems, environmental sealing techniques, and structural design considerations....” *Id.*

Patent Owner sets the level of skill possessed by a POSITA far too high. This then leads it to reach a similarly erroneous conclusion regarding Dr. Visser’s qualifications. Years of specific and focused experience designing “induction-actuated trash container[s]” is not required to understand the '165 patent. Nor is extensive experience with electromechanical systems.

A POSITA need only have ordinary—not extraordinary—skill. *E.g.*, *Environmental Designs Ltd. v. Union Oil Co.*, 713 F.2d 693, 697 (Fed. Cir. 1983) (a POSITA does not need to be a “genius[] in the art at hand”). Here, the ’165 patent relates to a trashcan, a simple and straightforward consumer product. Only general product design experience is required to understand how trashcans operate. The fact that the ’165 patent’s trashcan uses a sensor and motor to automatically open does not change this. The ’165 patent itself even characterizes inductive, automatically opening trashcans as “conventional” at the time of filing. ’165 patent, 1:37-38. Moreover, the patent makes clear that it is directed to “container[s]” in general, not necessarily trashcans. *Id.* Thus, all container design experience is relevant. Neither a POSITA (nor an expert) is required to have trashcan specific experience as the ’165 patent does not even limit itself this way. Experience with any type of automatically actuating consumer product (like a container, panel, tray, dispenser, or the like) is plainly relevant. Ex. 1013, ¶¶ 62-76.

Likewise, specific and detailed electromechanical knowledge is also not required. The patent’s trashcan employs standard, off-the-shelf mechanical and electrical components. ’165 patent, 1:35-66 (“electrically operated containers” “conventional”). And rather than providing specifics about the components it employs, the ’165 patent refers to these components generically. *Id.*, 5:32 (referencing an “actuation unit 60”), 6:50-42 (referencing a “sensor unit 51” with a

“circuit board” and “sensor”), 7:7 (referencing a “servo motor 61”). Thus, specialized knowledge regarding how to design and develop electromechanical systems cannot be required as the ’165 patent itself does include any such information.

As explained in the Petition, a POSITA in the technical field of the ’165 patent would have a technical degree (such as industrial design, industrial engineering, or mechanical engineering) and two years of product design experience. Petition, 12; *see also* Institution Decision, 12-13. This POSITA definition—unlike Patent Owner’s—is consistent with the ’165 patent’s disclosure. It requires only a moderate amount of technical education and recognizes that a general understanding of consumer product operation is sufficient to understand trashcan operation. And Petitioner’s expert Dr. Visser possesses far more than this level of ordinary skill. *See generally* Ex. 1006, ¶¶ 6-31, 57-59.

In any event, Dr. Visser’s wealth of experience satisfies even Patent Owner’s erroneous and overly stringent POSITA definition. Dr. Visser has been a professor of industrial design at Purdue University since 1989. *Id.*, ¶ 8. As part of this, he has taught numerous classes focusing on the integration of electrical and mechanical parts into consumer products. *Id.*, ¶ 9; Ex. 1013, ¶¶ 77-80. These classes discuss—among other things—how mechanical and electrical principles relate to and bear on those products and how consumers use them. *Id.* Thus, he has the type of academic

background Patent Owner requires. Response, 16 (noting that a “technical discipline” that is “related” to “mechanical” or “electrical engineering” is sufficient). Next, Dr. Visser does in fact have years of experience designing a variety of products employing sensors, electric motors, gears, and environmental sealing techniques. For instance, he has designed video game controllers, lighting elements, a vehicle lift control mechanism, foot operated trashcans, health video camera, portable audio devices, a fiber optic cross, and a temperature control system. *Id.*, ¶¶ 81-125. This collective experience provided Dr. Visser with significant exposure to and insight into how consumer products employ the types of electromechanical systems referenced by the ’165 patent. *Id.*

The rest of Patent Owner’s arguments regarding Dr. Visser similarly lack merit. Patent Owner argues that Dr. Visser does not qualify as a “patent expert.” Response, 18. But the Petition did not rely on Dr. Visser as a patent expert. Instead, it pointed to his testimony regarding how a POSITA would have understood Wang because he has technological and design expertise. *E.g., Sundance, inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1663-64 (Fed. Cir. 2008) (a “witness ... qualified in the pertinent art” may testify regarding a POSITA’s knowledge, anticipation, and obviousness). Patent Owner also wrongly faults Dr. Visser for not identifying the legal principles he applied, the POSITA standard, or the translation of Wang used. Response, 20-21. But Dr. Visser did provide this information. *E.g., Ex. 1006*, ¶¶

37, 68 (identifying translation of Wang), 38-54 (summarizing understanding of the law), 55-59 (providing POSITA definition).

III. CONCLUSION

For the reasons explained above—and in the Petition—the '165 patent's claims are all unpatentable as anticipated and/or obvious.

Respectfully submitted,

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Dated: July 1, 2026

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CERTIFICATE OF WORD COUNT

The undersigned certifies that the foregoing reply complies with the type-volume limitation in 37 C.F.R. § 42.24. According to the utilized word-processing system's word count, the reply contains 5,596 words.

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CERTIFICATE OF SERVICE

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