

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHARKNINJA OPERATING LLC,
SHARKNINJA MANAGEMENT LLC, AND
SHARKNINJA SALES COMPANY,
Petitioner,

v.

BISSELL INC.,
Patent Owner.

IPR2022-01194
Patent 10,973,383 B1

Before BENJAMIN D. M. WOOD, NEIL T. POWELL, and
CARL M. DEFRANCO, *Administrative Patent Judges*.

POWELL, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background and Summary

SharkNinja Operating LLC, SharkNinja Management LLC, and SharkNinja Sales Company (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–29 (“the challenged claims”) of U.S. Patent 10,973,383 B1 (Ex. 1001, “the ’383 patent”). BISSELL, Inc. (“Patent Owner”) filed a preliminary response (Paper 6, “Prelim. Resp.”). Pursuant to 35 U.S.C. § 314, an *inter partes* review of claims 1–29 of the ’383 patent was instituted. Paper 7 (“Institution Decision” or “Inst. Dec.”). Subsequently, Patent Owner filed a Response (Paper 11, “PO Resp.”), to which Petitioner filed a Reply (Paper 17, “Pet. Reply”), and Patent Owner thereafter filed a Sur-reply (Paper 18, “PO Sur-reply”).

A consolidated oral hearing for this proceeding and IPR2022-01195 was held on October 31, 2023. Paper 27 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Decision is a final written decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons below, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–29 of the ’383 patent are unpatentable.

B. Real Parties in Interest

Petitioner asserts that “real parties-in-interest are Petitioners SharkNinja Operating LLC, SharkNinja Management LLC, and SharkNinja Sales Company . . . , as well as EP Midco LLC and SharkNinja (Hong Kong) Company Limited.” Pet. vii. Petitioner also identifies “JS Global Lifestyle Company Limited as a real party-in-interest in an abundance of caution.” *Id.*

Patent Owner asserts that BISSELL Inc. is the real party in interest, but also identifies BISSELL Homecare, Inc. in “an abundance of caution.” Paper 4 (Patent Owner’s Mandatory Notices).

C. Related Matters

The parties both assert that there are no other judicial or administrative matters that would affect, or be affected by, a decision in this proceeding. Pet. vii; Paper 4. Petitioner challenges US Patent No. 11,147,426 B2, a patent that has substantial overlap in claimed subject matter with the ’383 patent in IPR2022-01195.

D. The ’383 Patent

The ’383 patent is directed to a battery-powered, wet vacuum cleaner. Ex. 1001, 3:54–56.

E. Illustrative Claims

Claim 1, reproduced below, is the sole independent claim challenged.

1. A surface cleaning apparatus, comprising:

an upright body comprising a handle and a frame, the frame comprising a main support section supporting a supply tank that is selectively removable from the main support section and a recovery tank that is selectively removable from the main support section;

a base operably coupled with the upright body, the base comprising a base housing and a removable nozzle assembly selectively coupled to the base housing, the removable nozzle assembly comprising a nozzle housing at least partially defining a brush chamber;

a recovery system comprising a suction nozzle, a suction source in fluid communication with the suction nozzle for generating a working air stream, and the selectively removable recovery tank;

a brushroll selectively receivable within the base and at least partially located within the brush chamber, the brushroll rotatable therein about a brushroll axis;

a brushroll motor provided in the base and operably coupled to the brushroll, the brushroll motor adapted to provide a driving force to rotate the brushroll about the brushroll axis;

a fluid delivery system comprising the supply tank, a pump, and a fluid distributor, the fluid distributor provided on the base and configured to spray the brushroll;

a battery housing provided on the frame of the upright body, the battery housing disposed vertically lower than the supply tank and rearwardly of the recovery tank;

a rechargeable battery provided within the battery housing, the rechargeable battery configured to selectively supply power to the suction source, the pump, and the brushroll motor; and

at least one charging contact provided on an exterior of the battery housing.

F. Prior Art and Asserted Grounds

Petitioner asserts that claims 1–29 would have been unpatentable on the following ground:

Claims Challenged	35 U.S.C. § ¹	References/Basis
1–29	103	Xia ² , Conrad ³ , Kitsukawa ⁴

Petitioner also relies on the testimony of Gareth Jones. Ex. 1003 ¶¶ 6–14.

G. Overview of the Asserted Prior Art

We now provide brief summaries of the asserted references.

1. Xia

Xia discloses multi-surface wet vacuum cleaner 10, which appears in Figure 1. Ex. 1004 ¶ 38. Figure 1 is reproduced below.

¹ The '383 patent was filed on Dec. 15, 2020. Ex. 1001, code (22). The earliest possible priority date is June 22, 2019. *Id.* at code (60). Petitioner does not challenge priority. Pet. 3. Accordingly, we apply the versions of 35 U.S.C. §§ 102 and 103 that were in force after they were amended by the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284 (2011).

² US PG Pub. No. 2017/0119225 A1, pub. May 4, 2017 (Ex. 1004).

³ US 11,229,342 B2, iss. Jan. 25, 2022, filed Dec. 22, 2017 (Ex. 1005).

⁴ JP Pub. No. 2016-137095 A, pub. Aug. 4, 2016 (Ex. 1006) (citations are made to the certified English translation appended thereto).

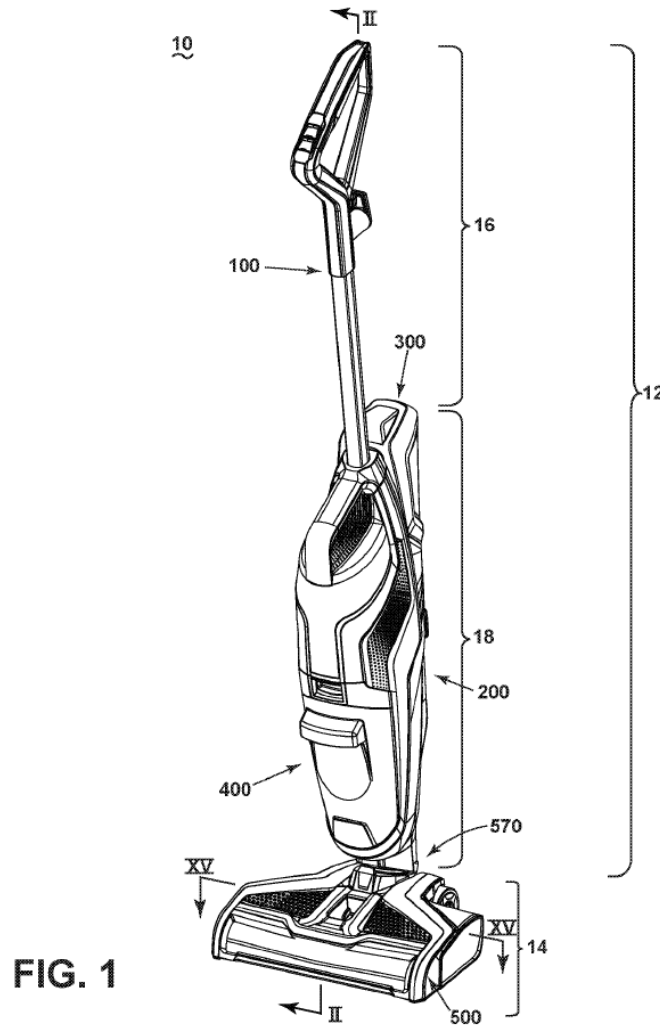


Figure 1 shows multi-surface wet vacuum cleaner 10 in perspective view.
Ex. 1004 ¶ 6.

Multi-surface wet vacuum cleaner 10 “includes an upright body or handle assembly 12 and a base 14 pivotally and/or swivel mounted to the upright handle assembly 12 and adapted for movement across a surface to be cleaned.” Ex. 1004 ¶ 38. “The upright handle assembly 12 comprises an upper handle 16 and a frame 18.” *Id.* ¶ 39. “Frame 18 comprises a main support section or body assembly 200 supporting at least a clean tank assembly 300 and a dirty tank assembly 400, and may further support additional components of the handle assembly 12.” *Id.*

2. Conrad

Conrad discloses a surface cleaning apparatus that may operate in a “dry cleaning mode” or a “wet cleaning mode.” Ex. 1005, 1:48–60. An example appears in Figure 9, which is reproduced below.

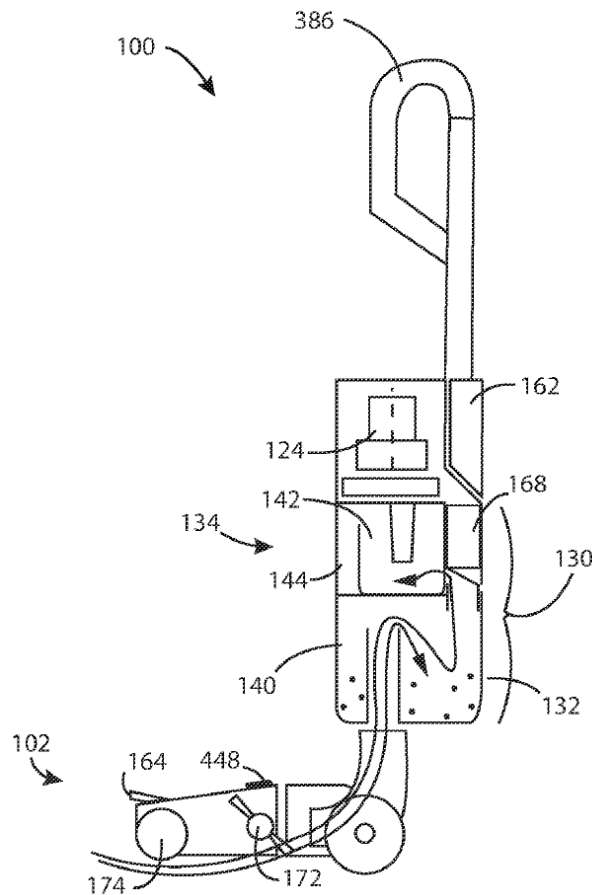


FIG. 9

Figure 9 shows surface cleaning apparatus 100. Ex. 1005, 101:38–43.

“[S]urface cleaning apparatus 100 includes a surface cleaning head 102 that is configured to travel (e.g., roll) across a surface to be cleaned, such as a floor.” Ex. 1005, 32:59–62. Surface cleaning apparatus 100 also includes suction motor 124. *Id.* at 34:51–52. Surface cleaning apparatus 100 further includes “a treatment unit 130 which is configured as a two stage treatment unit having a first stage separator 132 and a second stage separator 134 positioned in the fluid flow path

downstream from the first stage separator 132, and upstream from the suction motor 124.” *Id.* at 35:1–6. Notably, Conrad discloses providing cordless operation with battery pack 168:

the surface cleaning apparatus 100 may include an onboard power supply, such as in the form of a battery pack 168 and can be operated as a cordless apparatus (see for example [Figure] 9). The battery pack 168 may be relatively heavy as compared to some other components in the apparatus 100, and *may be positioned toward the rear of the cleaning unit 120. This may help lower the overall centre of gravity of the cleaning unit 120 when reclined in the surface cleaning position.* In the embodiment of [Figure] 9, the battery pack 168 is located below a liquid reservoir apparatus 162, rearward of the second cleaning state 134 (i.e. cyclone chamber 142) and above the first separator 132.

Ex. 1005, 101:38–51 (emphasis added).

3. *Kitsukawa*

Kitsukawa “relates to an electric vacuum cleaner.” Ex. 1006 ¶ 1. Kitsukawa discusses an embodiment in connection with Figure 7, which is reproduced below.

(FIG. 7)

FIG. 7

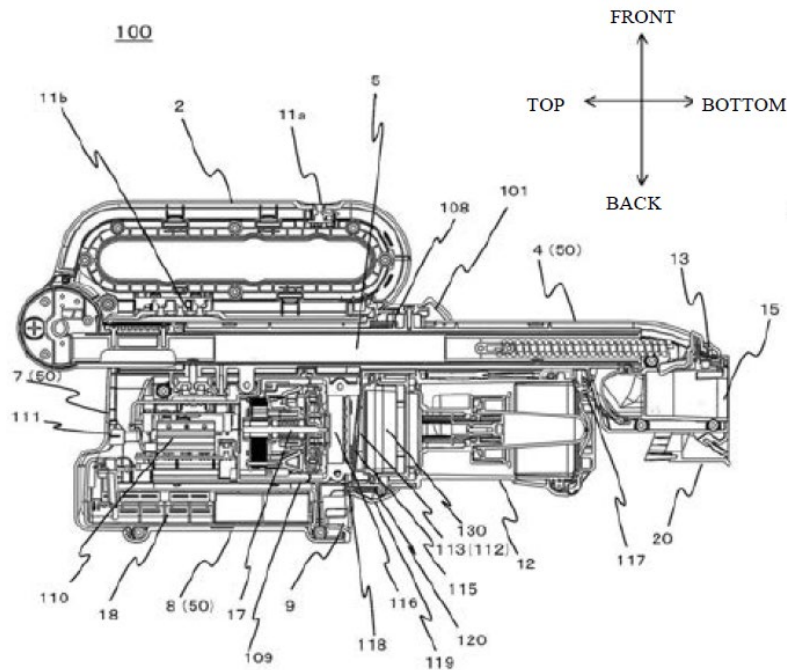


Figure 7 provides a cross-sectional view of a vacuum cleaner body. Ex. 1006 ¶ 12.

As shown in Figure 7, the vacuum cleaner includes motor case part 7 and storage battery case 8. Ex. 1006 ¶ 38. “The electric blower 17 is disposed in the center of the motor case part 7.” *Id.* Kitsukawa discloses that “the storage battery case 8 is disposed on the back of the motor case part 7.” *Id.* Kitsukawa further explains that “by providing the body terminal part 9 for charging the storage battery 18 beneath the storage battery case 8 and making it engage with the charging station terminal part 28 of the charging station 6 . . . so that they are electrically conductive with one another, the storage battery 18 can be charged.” *Id.*

Kitsukawa shows charging station 6 in Figure 4, which is reproduced below.

(FIG. 4)

FIG. 4

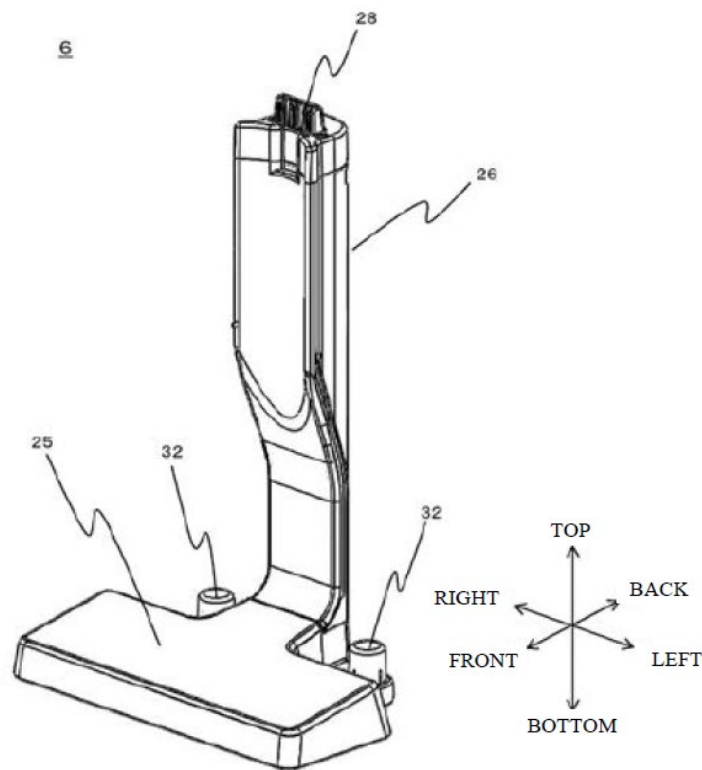


Figure 4 provides an external perspective view of charging station 6.

Ex. 1006 ¶ 12.

Charging station 6 includes base part 25 and stand part 26. Ex. 1006 ¶ 33. “The base part 25 is equipped with a power cord on the back, and has a charging board (not illustrated) on the inside.” *Id.* ¶ 34. “A protrusion-shaped charging station terminal part 28 is provided on the upper surface of the stand part 26 (upper surface of the substantially half-cylindrical portion of the stand part 26).” *Id.* ¶ 35. Additionally, “[t]he protrusion-shaped charging station terminal part 28 engages with a recess-shaped body terminal part 9 of the vacuum cleaner body 1.” *Id.* ¶ 37.

II. ANALYSIS

A. Legal Standards Used in the Merits Analysis

“In an IPR, 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 of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious . . . to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). 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) when in evidence, objective evidence of nonobviousness, i.e., secondary considerations. *See Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Petitioner asserts the following level of ordinary skill in the art:

a Bachelor’s degree in Mechanical Engineering (or an equivalent discipline) or equivalent work experience, and at least one year’s worth of experience in research, design and/or development related to vacuum cleaners for household and development [sic]

related to vacuum cleaners (or other comparable industrial design). Additional education could substitute for experience, and vice versa.

Pet. 9 (citing Ex. 1003 ¶ 21).

In its Preliminary Response, Patent Owner asserted the following level of ordinary skill in the art: “a bachelor’s degree in mechanical engineering or similar discipline and at least one year of experience designing vacuum cleaners.” Prelim. Resp. 8. Patent Owner did not cite supporting evidence for this position.

The Institution Decision adopted Petitioner’s proposed definition of the level of skill in the art, explaining that “[t]he definitions offered by the parties appear, for practical purposes, to be compatible. We adopt Petitioner’s proposed definition at this stage of the proceeding because it cites, and is supported by, evidence and appears reasonable upon reviewing the ’383 patent and the cited prior art.” Inst. Dec. 6–7. In its Response, “Patent Owner applies the skill level adopted by the Board for the purposes of institution.” PO Resp. 8.

The analysis in this Decision also applies Petitioner’s proposed level of skill, which appears to be consistent with the ’383 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art, itself, can reflect appropriate level of ordinary skill in art).

C. Claim Construction

We apply the same claim construction standard used in district courts, namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b) (2022). In applying that standard, claim terms generally are given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the

art at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

Here, two claim-construction issues warrant discussion. The first issue is the meaning of “rearwardly of the recovery tank” in claim 1’s recitation of “a battery housing provided on the frame of the upright body, the battery housing disposed vertically lower than the supply tank and rearwardly of the recovery tank.” Ex. 1001, 30:52–55. The second issue is the meaning of “the rechargeable battery configured to selectively supply power to the suction source, the pump, and the brushroll motor.”

Id. at 30:57–59. We turn now to detailed discussions of those issues.

1. “rearwardly of the recovery tank” (claim 1)

Patent Owner contends “rearwardly of the recovery tank” means “behind substantially the entirety of the recovery tank.” PO Resp. 8–12. This is the plain and ordinary meaning of the claim language, Patent Owner argues. *Id.* at 10.

According to Patent Owner, its “construction is supported by both intrinsic and available extrinsic evidence.” PO Resp. 10. Patent Owner argues that the ’383 patent’s Figure 34 shows “battery housing 3374 is below substantially the entirety of the supply tank 3020, and the battery housing 3374 is behind substantially the entirety of the recovery tank 3022.” *Id.* Patent Owner further contends that “the specification does not disclose embodiments in which a rearward position is anything less than behind substantially the entirety of the reference feature.” *Id.* at 11–12. Citing a

dictionary, Patent Owner adds that “[a]vailable extrinsic evidence defines ‘rearward’ as ‘directed toward the back.’” *Id.* at 12.

Petitioner counters that Patent Owner rewrites the claim language without providing supporting evidence. Pet. Reply 1–2. Petitioner argues that Patent Owner’s proposed construction is not the plain and ordinary meaning of the claim language. *Id.* at 3. Petitioner asserts that the single embodiment in the ’383 patent’s Figure 34 “cannot provide a definition for what rearwardly means.” *Id.* at 4–5. Petitioner adds that Figure 34 “just shows that battery housing is rearwardly—to the rear of—the supply tank,” noting the ’383 patent’s statement that “specific dimensions and other physical characteristics relating to the embodiments disclosed herein are not to be considered as limiting, unless the claims expressly state otherwise.” *Id.* at 5. Petitioner further contends that Patent Owner’s dictionary definition does not support Patent Owner’s proposed claim construction:

Patent Owner relies on an extrinsic dictionary definition of rearward as being “directed toward the back.” POR, 12. But being directed toward the back provides no support for Patent Owner’s improper narrowing down to “behind substantially the entirety of”; instead, it supports Petitioners’ position that rearwardly just means at or near the rear. *See* Ex. 2001, 3 (defining “rearward” as “directed toward the back”); Ex. 1003, ¶¶125–27 (interpreting “rearwardly” to mean located at or near the rear). Nothing in the wording of “directed toward the back” suggests an indication of an amount that would then translate into “substantially the entirety of.”

Id. at 5–6.

Patent Owner responds that Petitioner does not support its positions with persuasive evidence and fails to explain how the dictionary definition of “rearward” would support Petitioner’s position, as opposed to Patent Owner’s position. PO Sur-reply 1–3. According to Patent Owner “the

phrase “directed toward” logically implies a degree of approximation, which is manifested in Patent Owner’s construction as being “behind substantially the entirety of the recovery tank.” *Id.* at 2.

We agree with Petitioner that Patent Owner’s arguments and evidence do not support a conclusion that the claim language “rearwardly of the recovery tank” means “behind substantially the entirety of the recovery tank.” PO Resp. 8–12; Pet. Reply 2–6; PO Sur-reply 1–3. We start with the claim language itself. *See Phillips*, 415 F.3d at 1314. Patent Owner does not cite persuasive evidence for its assertion that the proposed construction captures the claim language’s ordinary and customary meaning. *See* PO Resp. 10. To the contrary, as Petitioner argues, Patent Owner undermines its position by citing the dictionary definition of “rearward” as meaning “directed toward the back.” PO Resp. 12; Pet. Reply 5–6. This definition suggests that the plain meaning of the claim language “rearwardly of the recovery tank” is significantly broader than Patent Owner’s proposed construction.

Contrary to Patent Owner’s view, the cited portions of the Specification and drawings also fail to support Patent Owner’s proposed claim construction. *See* PO Resp. 10–12. Assuming Patent Owner is correct that Figure 34 shows an exemplary embodiment in which a battery is located “behind substantially the entirety of the recovery tank,” we cannot arbitrarily limit the claim to that embodiment. *SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) (“Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim.”). And Patent Owner does not

cite persuasive evidence of the Specification or drawings emphasizing or even ascribing significance to having a battery “behind substantially the entirety of the recovery tank.” PO Resp. 8–12; PO Sur-reply 1–3.

For the foregoing reasons, we do not adopt Patent Owner’s proposed construction of claim 1’s recitation of “rearwardly of the recovery tank.” Instead, we find more persuasive Petitioner’s proposed construction: “at or near the rear of the recovery tank.” Pet. Reply 6.

2. *“the rechargeable battery configured to selectively supply power to the suction source, the pump, and the brushroll motor” (claim 1)*

As requested in the Institution Decision, Patent Owner’s Response proposes a construction for claim 1’s recitation of a “rechargeable battery configured to selectively supply power to the suction source, the pump, and the brushroll motor.” Inst. Dec. 7; PO Resp. 12–16. Specifically, Patent Owner argues that this claim language requires a configuration “to energize the suction source, the pump, and the brushroll motor independently of each other.” PO Resp. 14. According to Patent Owner, this is consistent with the “ordinary and customary meaning” of “selectively supplies power.” *Id.* at 16. Quoting a dictionary definition of “selective,” Patent Owner argues that “any construction of ‘selectively supplies power’ that omits the requirement that the battery ‘affect[] some things and not others’ would read ‘selectively’ out of the claims.” *Id.* at 15–16 (quoting Ex. 2002, 1545).

Patent Owner also asserts that “while the detailed description does not recite ‘selectively supply power’ *in haec verba*, the detailed description does provide two examples in which less than all three electrical loads (suction source, pump, and brushroll motor) are energized by the battery.” PO Resp. 13–14 (citing Ex. 1001, 27:17–21, 27:28–29, 27:47–50). Additionally, Patent Owner argues that, in the configuration shown in

Figure 44 of the '383 patent, “battery 3372 energizes some or all of the electrical loads 3064, 3094, 3096 (via controller 3308) dependent upon the whether the self-cleaning mode is beginning or ending.” *Id.* at 14.

According to Patent Owner, “[t]he existence of intermediate circuit elements (e.g., battery monitoring circuit 3432 and controller 3308) does not lessen this truth, but merely serve to effectuate the purpose of the battery to energize different electrical loads independently of each other.” *Id.*

Patent Owner also asserts that extrinsic evidence supports its claim-construction position. PO Resp. 14–15. Patent Owner explains that “‘selective’ is defined as ‘affecting some things and not others.’” *Id.* at 14. Patent Owner also contends that Mr. Jones acknowledged in cross-examination that Patent Owner’s construction “is the ‘more correct interpretation.’” *Id.* at 15 (citing Ex. 2003, 26:15–27:10).

Petitioner counters that the claim term “selectively” means “in one of two possible states.” Pet. Reply 9. Therefore, Petitioner argues that “‘selectively supplies power’ means that there are two states: power is supplied or it is not supplied.” *Id.* at 12. According to Petitioner, Patent Owner tries “to rewrite otherwise clear claim language.” *Id.* at 7.

Petitioner contends that the plain meaning of the claim language does not support Patent Owner’s construction: “To the contrary, the use of the conjunctive ‘and’ in the latter half of the claim limitation indicates that all three of the components are ‘selectively suppl[ied] power’ simultaneously.” Pet. Reply 7 (citing *Medgraph, Inc. v. Medtronic, Inc.*, 843 F.3d 942, 949–50). Turning to the Specification, Petitioner argues that neither example cited by Patent Owner discloses the battery energizing multiple loads independently and no part of the Specification describes an

“arrangement as one in which the battery has ‘selectively suppl[ied] power.’” *Id.* at 8–9. Petitioner further argues that the Specification “consistently uses the term “selectively” in the way that the Petition has proposed: a component is in one of two possible states:

For example, the “supply tank” and the “recovery tank” are both “selectively removable,” meaning that they can take one of two states: removed, or not removed. *See* Ex. 1001, 1:46–48. Likewise, the “suction power switch ... can be selectively closed by the user, thereby activating the suction motor/fan assembly.” *Id.*, 13:11–14. Similarly, “a brush power switch ... can be selectively closed by the user, thereby activating the brush motor.” *Id.*, 13:14–17.

Id. at 9.

Petitioner also argues that Patent Owner’s extrinsic evidence is unavailing. Pet. Reply 10–11. Petitioner asserts that we should reject Patent Owner’s citation of the dictionary because “Patent Owner has not alleged that the term ‘selectively’ is ambiguous.” *Id.* at 10. Noting that Patent Owner relies not on a definition of “selectively” but on the third definition of “selective,” Petitioner contends that Patent Owner’s dictionary evidence does not include a definition that “compels the conclusion that when used in the context of this claim, the term ‘selectively’ means choosing individually between the three choices presented.” *Id.*

Regarding Mr. Jones’s cross-examination testimony, Petitioner argues that “Mr. Jones confirmed that the plain meaning of ‘selectively supplies power’ means that there are two states: powered on, or powered off.” Pet Reply 11. Petitioner cites Mr. Jones’s answer that the language “selectively supply power” is “a slightly unusual term in that a person of ordinary skill wouldn’t use the term ‘selectively supply power,’ but other than that I think I take it to mean that it can power things off, it can power them on. You can

select between two states.” Ex. 2003, 24:11–21; Pet. Reply 10–11.

Petitioner asserts that Patent Owner does not address this portion of Mr. Jones’s testimony. Pet. Reply 11. Additionally, Petitioner argues that the portion of Mr. Jones’s testimony cited by Patent Owner was a response to a later question about the meaning of the claim term divorced from the ’383 patent, which Petitioner argues is irrelevant. *Id.* at 11.

In its Sur-reply, Patent Owner counters that Petitioner’s construction “strips ‘selectively’ from the term in dispute.” PO Sur-reply 3. Patent Owner contends that “[u]nder Petitioner’s construction, there is no logical distinction between a rechargeable battery ‘configured to supply power’ to the suction source, the pump, and the brushroll motor, and a rechargeable battery ‘configured to selectively supply power’ to the suction source, the pump, and the brushroll motor.” *Id.* “Petitioner’s construction ignores the term ‘selectively’ and would therefore violate the principle that a construction should not read an express limitation out of the claims,” Patent Owner argues. *Id.* (citing *Texas Instruments v. USITC*, 988 F.2d 1165, 1171 (Fed. Cir. 1993); *Biocon, Inc. v. Straumann Co.*, 441 F.3d 945, 950–52 (Fed. Cir. 2006)).

Patent Owner also maintains that the intrinsic evidence supports its construction. PO Sur-reply 4–6. For example, Patent Owner maintains that “[t]he specification provides at least two examples in which the battery energizes less than all three electrical loads (suction source, pump, and brushroll motor).” *Id.* at 4–5. Additionally, reiterating its argument that Mr. Jones agreed with Patent Owner’s claim construction in cross-examination, Patent Owner argues that any contrary evidence provided by Mr. Jones “cannot displace Patent Owner’s construction, because Patent Owner’s

construction is rooted in the intrinsic record.” *Id.* at 5 (citing *Profectus Tech. LLC v. Huawei Techs. Co.*, 823 F.3d 1375, 1380 (Fed. Cir. 2016)). Addressing Petitioner’s assertion that the Specification repeatedly uses the word “selectively” as meaning “a component is in one of two possible states,” Patent Owner asserts that “Petitioner’s cherry-picked excerpts of ‘selectively’ from the specification relate to examples *other than* the rechargeable battery.” *Id.* at 5–6.

Patent Owner further suggests that the claim requires the rechargeable battery acting alone to independently supply power to the three loads. PO Resp. 27; PO Sur-reply 11. In particular, Patent Owner indicates that the claim requires “the independent ability of the rechargeable battery to selectively energize the suction source, the pump, and the brushroll motor,” as opposed to “the ability of *the user*” to activate the motors. PO Sur-reply 11.

We find Petitioner’s claim-construction position more persuasive than Patent Owner’s claim-construction position. We start with the claim language itself. *See Phillips*, 415 F.3d at 1314. We find the claim language supports Petitioner’s position, not Patent Owner’s position. We agree with Petitioner that, by listing the loads conjunctively, the claim’s recitation of “selectively supply power to the suction source, the pump, *and* the brushroll motor” indicates that all three loads receive power simultaneously, not independently. Ex. 1001, 30:57–59 (emphasis added); Pet. Reply 7.

And we disagree with Patent Owner’s argument that Petitioner’s construction reads “selectively” out of the claim. PO Resp. 15–16; PO Sur-reply 3. Petitioner’s construction reads “selectively” as narrowing the claim to require a configuration to supply power to all three loads

sometimes, as opposed to a configuration to supply power to all three loads always. Pet. Reply 12.

Turning to the Specification, we find the '383 patent's disclosures support Petitioner's claim-construction position more than they support Patent Owner's claim-construction position. Petitioner persuades us that the '383 patent repeatedly uses the term "selectively" in a manner that means a component is in one of two possible states. Pet. Reply 9; Ex. 1001, 1:46–48, 13:11–14, 13:14–17, 30:29–30, 30:34, 30:39–41. This evidence supports Petitioner's position that, in the disputed claim language, the word "selectively" means that the supply of power to the loads can be either off or on, i.e., that the loads can be supplied with power sometimes. Pet. Reply 9. Patent Owner's criticism that none of the cited Specification disclosures of "selectively" specifically refers to a battery does little to undermine Petitioner's position, given that Patent Owner does not cite an instance of the Specification using the term "selectively" when referring to a battery. PO Sur-reply 5–6.

Regarding the portions of the Specification cited by Patent Owner, these only provide examples of the surface cleaning apparatus's operation. PO Resp. 13–15; Ex. 1001, 27:17–21, 27:28–29, 27:47–53, Fig. 44. These portions of the '383 patent do not disclose that supply of power to the loads independently is critical. Ex. 1001, 27:17–21, 27:28–29, 27:47–53, Fig. 44. Indeed, the passages demonstrate the opposite, describing the independent supply of power to the loads as an optional aspect of the disclosed invention. For example, in one passage, the '383 patent discloses that "[t]he vacuum motor can be actuated *during or after* step 3450," in which pump 3094 and brush motor 3096 are also activated. *Id.* at 27:14–30 (emphasis added).

Thus, an embodiment involving activation of the vacuum motor independently of the pump and the brushroll motor is described as an alternative to an embodiment involving simultaneous activation of all three motors. Patent Owner's second example similarly describes independent activation of motors as optional, disclosing that "the pump 3094 *can* be de-energized to end fluid dispensing while the brush motor 3096 and vacuum motor 3064 *can* remain energized to continue extraction." *Id.* at 27:47–50 (emphasis added).

Additionally, the Specification does not support Patent Owner's position that the proper claim construction requires a configuration in which the battery acting alone supplies power to the three loads (either independently or collectively). PO Resp. 27; PO Sur-reply 11. Indeed, at odds with this position, Patent Owner concedes that the '383 patent discloses that "battery 3372 energizes some or all of the electrical loads 3064, 3094, 3096 (*via controller 3308*)," alleging that the "intermediate circuit elements (e.g., battery monitoring circuit 3432 and controller 3308) . . . merely serve to effectuate the purpose of the battery to energize different electrical loads independently of each other." PO Resp. 14. Patent Owner's vague argument about the intermediate circuit elements effectuating the battery's purpose does not persuade us that the '383 patent discloses a configuration in which the battery acting alone can control power supply to the loads. And Patent Owner does not otherwise persuasively reconcile the fact that the '383 patent discloses a configuration using circuit elements between the battery and the loads with Patent Owner's position that the claim requires the battery acting alone to control power supply to the loads. *See generally* PO Resp.; PO Sur-reply. Patent Owner cites certain passages of the '383

patent related to controlling power supply to loads, and none of these passages suggests that the battery acting alone controls power supply to the loads. PO Resp. 13–14 (citing Ex. 1001, 27:17–21, 27:28–29, 27:47–53, Fig. 44); PO Sur-reply 4–5 (citing Ex. 1001, 27:17–21, 27:28–29, 27:47–53). For the foregoing reasons, we find the intrinsic evidence strongly favors Petitioner’s claim-construction position over Patent Owner’s claim-construction position.

The extrinsic evidence does not tip the balance in favor of Patent Owner. For example, we do not find Patent Owner’s dictionary definition of “selective” consistent with the intrinsic evidence or otherwise persuasive to support Patent Owner’s construction. PO Resp. 14–16 (citing Ex. 2002, 1545). Also, considered as a whole, Mr. Jones’s testimony supports Petitioner’s claim-construction position more so than Patent Owner’s claim-construction position. Ex. 2003, 24:11–21, 26:15–27:10; Ex. 1003 ¶¶ 135–136; Pet. Reply 10–11; PO Resp. 15; PO Sur-reply 5. Mr. Jones’s testimony supports Petitioner’s position that, in the context of the ’383 patent, the correct construction of the claim language does not require independent supply of power to the loads. Ex. 2003, 24:11–21; Ex. 1003 ¶¶ 135–136; Pet. Reply 10–11. Patent Owner’s emphasis on Mr. Jones’s testimony regarding another possible meaning of “selectively supply” is unpersuasive. PO Resp. 15 (citing Ex. 2003, 26:15–27:10); PO Sur-reply 5 (citing Ex. 2003, 26:15–27:10). As Petitioner notes, this testimony refers only to a meaning divorced from the disclosure of the ’383 patent. Ex. 2003, 26:15–27:10; Pet. Reply 10–11. To the extent it is even relevant, this extrinsic evidence carries very little weight, given the foregoing reasons that

the intrinsic evidence strongly favors Petitioner’s claim-construction position over Patent Owner’s claim-construction position.

On the whole, we agree with Petitioner that the claim language “the rechargeable battery configured to selectively supply power to the suction source, the pump, and the brushroll motor” encompasses a configuration to supply power to all three loads simultaneously, rather than requiring a configuration to supply power independently to the three loads. Pet. Reply 7–12, 21–24. Additionally, we conclude that, contrary to Patent Owner’s suggestion, the claim language does not require the battery acting alone to supply power to the three loads. PO Resp. 27; PO Sur-reply 11.

*D. Asserted Obviousness over Xia, Conrad, and Kitsukawa
(Claims 1–29)*

According to Petitioner, “[e]very claimed component in the ’383 patent other than the lower rear rechargeable battery with charging contacts is disclosed—using the *same* terminology with the *same* figures—by Patent Owner’s own prior art publication, Xia.” Pet. 1. Petitioner asserts that Xia and the ’383 patent have nearly identical disclosures “except for additional description of the battery in the ’383 patent.” *Id.* Petitioner elaborates that “Xia discloses a cordless vacuum that uses a battery, but it does not explicitly disclose [the challenged claims’ requirement] that the battery is rechargeable and located in the lower rear with charging contacts.” *Id.*

Petitioner contends that it was well known to place a rechargeable battery in a cordless cleaning device’s rear part. Pet. 2. Petitioner elaborates that Conrad and Kitsukawa “both . . . disclose cordless cleaning devices” and “detail the precise location of the rechargeable battery claimed in the ’383 patent to achieve a well-known benefit of lowering the center of gravity due to the battery’s weight.” *Id.* Petitioner asserts that “Conrad teaches that

‘the battery pack 168 is located below a liquid reservoir apparatus 162,’ and ‘rearward of the second cleaning state.’” *Id.* at 18 (citing Ex. 1005, 101:48–51). Petitioner contends that a person of ordinary skill in the art would have been motivated to modify Xia’s cleaner “to adopt Conrad’s suggested battery positioning.” *Id.* (citing Ex. 1003 ¶¶ 73–74). Petitioner argues that “Conrad explicitly teaches that its suggested positioning of the battery pack ‘may help lower the overall center of gravity of the cleaning unit 120 when reclined in the surface cleaning position.’” *Id.* (citing Ex. 1005, 101:43–51).

Petitioner cites Kitsukawa to address, among other things, the challenged claims’ requirement that the battery be rechargeable. Pet. 45–47. Noting that Xia’s and Conrad’s disclosures of battery-powered vacuums do not explicitly mention rechargeable batteries, Petitioner argues that Kitsukawa teaches that its “vacuum cleaner 100 . . . is a rechargeable vacuum cleaner which charges the storage battery 18 by the charging stand 6.” *Id.* at 19 (citing Ex. 1006 ¶ 17). According to Petitioner, “[a person of ordinary skill in the art] would have understood that the rechargeable battery taught by Kitsukawa would be useful in Xia’s cleaner (as modified to use the battery positioning from Conrad) to achieve the same benefits, and they would have been motivated to that combination.” *Id.* (citing Ex. 1003 ¶ 83).

Patent Owner counters that the challenged claims recite subject matter not taught by the cited prior art. PO Resp. 1. According to Patent Owner, Petitioner has not addressed sufficiently certain of the challenged claims’ limitations:

- (a) a battery housing provided on the frame of the upright body;
- (b) a battery housing disposed rearwardly of the recovery tank;
- and (c) a rechargeable battery configured to selectively provide

power to the suction source, the pump, and the brushroll motor. Further with respect to dependent claim 17, the single ground of obviousness fails to disclose a display including multiple status indicators including a battery status and a self-cleaning status.

Id. at 2.

Based on our review of all of the parties’ arguments and evidence, we determine Petitioner has demonstrated by a preponderance of the evidence that each of claims 1–29 would have been obvious over the combined teachings of Xia, Conrad, and Kitsukawa. Patent Owner does not dispute Petitioner’s arguments and evidence regarding certain of the challenged claims’ limitations. With respect to those undisputed limitations, we have carefully reviewed Petitioner’s arguments and evidence, and we find them persuasive. Below, we discuss in detail the arguments and evidence relating to those claim limitations in dispute. For the reasons that follow, we find Petitioner’s arguments and evidence more persuasive than Patent Owner’s.

1. “a battery housing provided on the frame of the upright body” (claim 1)

Claim 1 recites “an upright body comprising a . . . frame” and “a battery housing provided on the frame.” Ex. 1001, 30:27, 30:52–53. Addressing the claimed “upright body” and “frame,” Petitioner cites Xia’s disclosure that “[t]he upright handle assembly 12 comprises an upper handle 16 and a frame 18.” Pet. 24 (citing Ex. 1004 ¶ 39). Regarding the claimed “battery housing,” Petitioner cites Xia’s disclosure that “[a] power source 22, such as a battery or power cord plugged into a household outlet, can be electrically coupled to the electrical components of the vacuum cleaner 10.” *Id.* at 33 (citing Ex. 1004 ¶ 80).

Noting that “Xia does not explicitly recite . . . where a battery *housing* or where the battery would be positioned on the cleaner,” Petitioner argues that Conrad discloses placing its battery pack 168 on the frame of the surface

cleaner's upright body, specifically at the upright body's rearward portion. Pet. 33–35 (citing Ex. 1005, 101:38–41, 101:43–51, Fig. 9; Ex. 1003 ¶¶ 117–119). Petitioner argues that “[i]t would have been obvious to a [person of ordinary skill in the art] to dispose the battery power source 22 of Xia vertically lower than Xia's supply tank 301 and rearwardly of Xia's recovery tank 401.” *Id.* at 35–36 (citing Ex. 1004, Fig. 2; Ex. 1003 ¶¶ 120–123). Petitioner contends that it would have been obvious to do so “as instructed by the arrangement shown in Conrad, to help lower the overall center of gravity of Xia's surface cleaning apparatus.” *Id.* Petitioner asserts that “Xia and Conrad generally describe upright wet vacuum cleaners having similar structures, including supply and recovery tanks.” *Id.* at 36 (citing Ex. 1003 ¶ 124). Petitioner adds that “Conrad explains that ‘[t]he battery pack 168 may be relatively heavy as compared to some other components in the apparatus 100, and may be positioned toward the rear of the cleaning unit 120’” and that Conrad discloses this “may help lower the overall centre of gravity of the cleaning unit 120 when reclined in the surface cleaning position.” *Id.* at 34–35 (quoting Ex. 1005, 101:43–48).

In its Response, Patent Owner argues that each of Xia, Conrad, and Kitsukawa fails to disclose a battery housing on an upright body's frame. PO Resp. 19–23. For example, Patent Owner argues that Conrad's “battery pack 168 is positioned on a cyclone chamber 142, not the frame of an upright body.” *Id.* at 19. Patent Owner also argues that “Petitioner provides no explanation as to why it would have been obvious to have modified Xia to provide a battery pack 168 on Xia's frame 18, as opposed to Xia's base 14 for example, which would further lower the center of gravity, consistent with

Conrad’s express teachings.” *Id.* at 19–20 (citing Ex. 1005, 101:45–48; Ex. 2003, 46:6–16, 46:25–16).

In its Reply, Petitioner argues that Patent Owner “misses the point” by “focus[ing] solely on Conrad’s disclosure,” whereas “[t]he Petition is relying on Conrad’s teaching and applying that teaching to Xia.” Pet. Reply 15. Petitioner explains that “[i]n the modified version of Xia [set forth in the Petition], the power source 22 is clearly provided on body assembly 200 of [Xia’s] frame 18.” *Id.* at 14. And Petitioner maintains that “[t]he Petition establishes why a POSITA would have been motivated to modify Xia to provide a battery housing on the frame of the upright body and provides modified [Figure] 2 of Xia to show what that arrangement would be.” *Id.* at 17.

Petitioner also asserts that “Patent Owner’s argument is based on an incorrect interpretation of Conrad’s Figure 9.” Pet. Reply 15. Petitioner contends that “[t]here is nothing in Conrad’s Figure 9 or the Conrad specification to support Patent Owner’s argument that the battery pack is ‘positioned on’ cyclone chamber 142 as opposed to just being next to it.” *Id.*

Regarding Patent Owner’s argument that placing the battery on the surface cleaning apparatus’s base would further lower the center of gravity, Petitioner asserts that “there is no requirement in the obviousness analysis that requires Petitioner to show that one obvious implementation (placement of the battery on the frame of the upright body) is preferable to a second obvious implementation (placement of the battery on the base).” Pet. Reply 16 (citing *Fleming v. Cirrus Design Corp.*, 28 F.4th 1214, 1223–24 (Fed. Cir. 2022)).

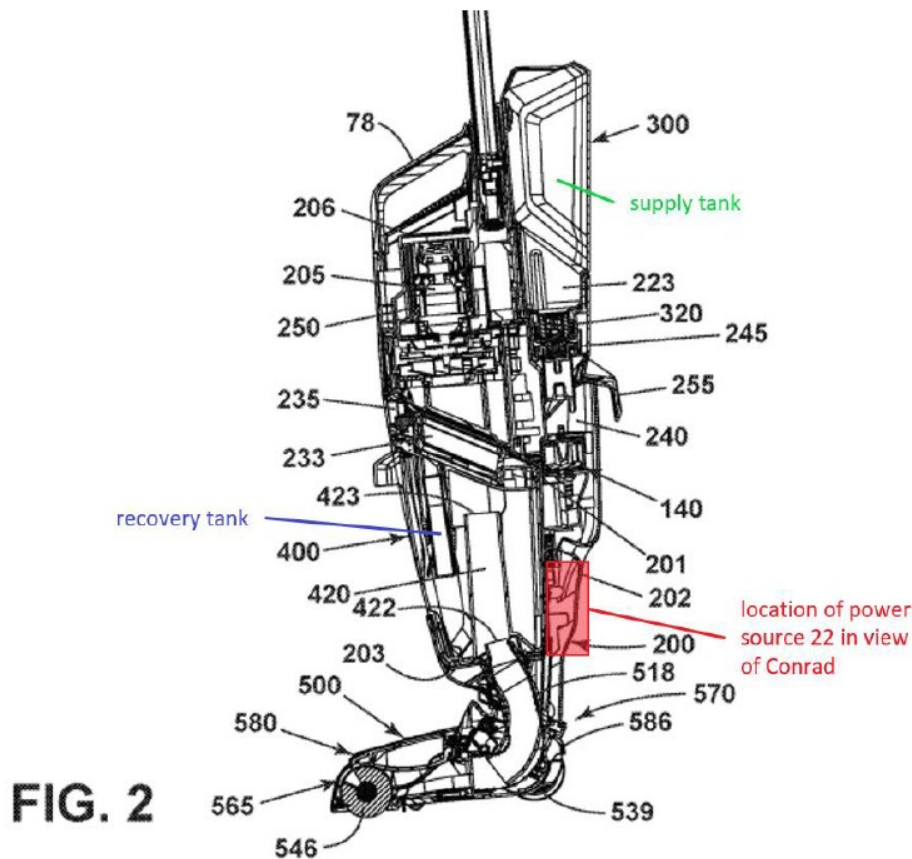
In its Sur-reply, Patent Owner disputes Petitioner's characterizations of Xia and argues that "Petitioner's Reply does not provide any apparent reason to modify Xia to provide a battery housing on Xia's frame 18."

PO Sur-reply 7. According to Patent Owner, Petitioner explains why it would have been obvious to modify Xia to use a rechargeable battery inside a battery housing, but Petitioner does not provide a motivation for placing a battery on Xia's frame 18. *Id.* at 7–8. Disputing Petitioner's arguments about Conrad, Patent Owner asserts that "Conrad does not mention a frame, and indeed Figure 9 of Conrad depicts a battery pack on a cyclone chamber 142." *Id.* at 8.

Weighing the parties' arguments and evidence, Petitioner persuades us that a "battery housing provided on a rear side of the frame" would have been obvious in view of the prior art. Pet. 18–19, 23–24, 33–44; PO Resp. 19–23; Pet. Reply 13–18; PO Sur-reply 6–8. As Petitioner notes, Xia discloses mounting components, including clean tank assembly 300 and dirty tank assembly 400, to body assembly 200, which is part of the upright body's frame 18. Pet. 23–25; Pet. Reply 14; Ex. 1004 ¶¶ 39, 44–45, 53–54; Ex. 1003 ¶¶ 54, 96–97. Additionally, although we agree with Patent Owner that the text of Conrad does not expressly mention a "frame," we find that a person of ordinary skill in the art would have understood Conrad's disclosure the way Mr. Jones does, specifically that "the battery pack 168 is provided on the frame of the upright body of Conrad's surface cleaning apparatus." Ex. 1003 ¶ 118; *In re Fritch*, 972 F.2d 1260, 1264–65 (Fed. Cir. 1992) (a reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in the art would have reasonably been expected to draw therefrom). As Petitioner notes, Xia demonstrates that

prior-art surface cleaning apparatuses with the same conventional configuration as Conrad's had components of an upright body portion mounted to the upright body portion's frame. Pet. 18–19, 23–25; Ex. 1004 ¶¶ 34, 38–39, 44–45, 53–54, Fig. 1; Ex. 1005, 32:59–33:8; Ex. 1003 ¶¶ 79, 94–97. Logically, then, a person of ordinary skill in the art would have inferred that the components of Conrad's upright body portion, including battery pack 168, would be provided on a frame of the upright battery pack, consistent with Mr. Jones's testimony. Ex. 1003 ¶ 118.

Moreover, even if none of the references individually discloses a battery on a frame of a surface cleaning apparatus's upright body, Petitioner's arguments and evidence persuade us that such a configuration would have been obvious in view of the references, collectively. Mr. Jones testifies that it would have been obvious to place a battery in Xia's cleaner where Conrad expressly discloses one should place a battery on a surface cleaning apparatus, specifically “toward the rear of cleaning unit” below a supply tank, as shown in Mr. Jones's modified version of Xia's Figure 2, reproduced below.



Mr. Jones’s modified version of Xia’s Figure 2 illustrates the location in which Mr. Jones testifies that Conrad teaches placing a battery like the one used in Xia’s surface cleaning apparatus. Ex. 1003 ¶ 123. So placed, the battery is on the frame of the surface cleaning apparatus’s upright body, as Patent Owner recognizes. Pet. Reply 13–14; Tr. 30:10–11. On the whole, Petitioner has demonstrated that it would have been obvious to place a battery housing “on the frame” of Xia’s upright body. Pet. 18–19, 23–25, 33–44; Pet. Reply 13–18.

Even if accurate, Patent Owner’s argument that neither reference expressly discloses locating the battery on the frame does not undermine Petitioner’s showing of obviousness. *E.g.*, PO Sur-reply 6, 8. An obviousness “analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim.” *KSR*, 550 U.S. at 418; *see*

also id. at 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”).

Similarly, even if accurate, Patent Owner’s suggestion that there may have been other obvious places to locate a battery in Xia’s cleaner does not undermine Petitioner’s showing of obviousness. *E.g.*, PO Resp. 19; *see also Fleming*, 28 F.4th at 1223–1224 (Fed. Cir. 2022) (“[T]he Board correctly explained that the obviousness inquiry does not require that the prior art combination is ‘preferred, or the most desirable’ configuration.”).

2. “*the battery housing disposed . . . rearwardly of the recovery tank*”
(*claim 1*)

As discussed above in Section II.D.1, Petitioner notes that Xia discloses using a battery for its surface cleaning apparatus, but does not explicitly disclose the location of the battery on the surface cleaning apparatus. Pet. 33. Asserting that Conrad discloses certain advantages of placing a battery toward the rear of a surface cleaning apparatus, Petitioner contends that it would have been obvious to locate a battery in Xia’s surface cleaning apparatus rearwardly of Xia’s recovery tank 401. *Id.* at 12–14, 18–19, 33–44; Pet. Reply 18–20.

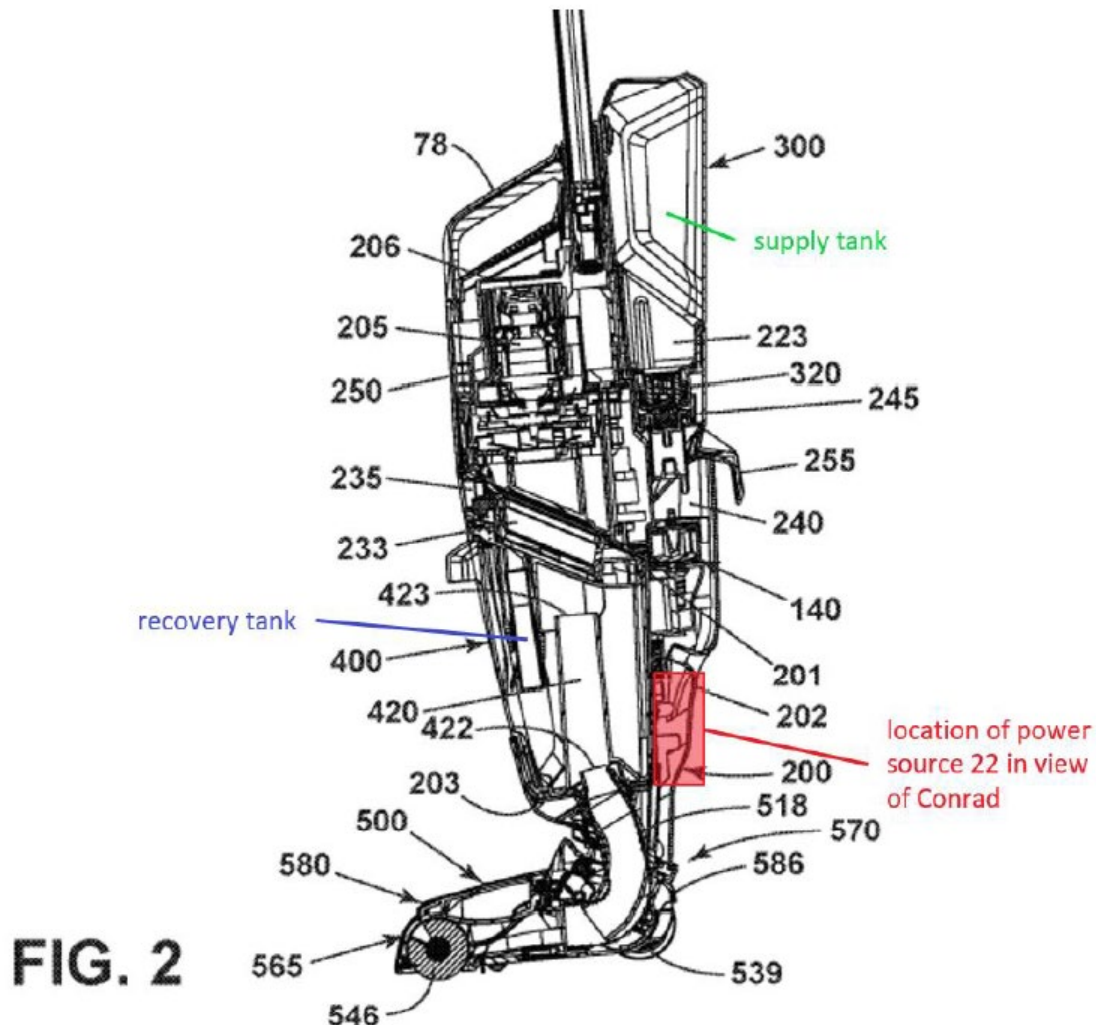
Patent Owner argues that “the references fail to make obvious [a ‘battery housing disposed . . . rearwardly of the recovery tank’],” “[a]s properly construed.” PO Resp. 23. Noting that Xia does not disclose the limitation and that Petitioner “cites Figure 9 of Conrad,” Patent Owner argues that “the battery pack 168 shown in Conrad’s Figure 9 is not *entirely* behind both cleaning stages of the treatment unit 130” but “is even with, and positioned above, the first stage separator 132.” *Id.* at 23–24 (emphasis added). According to Patent Owner “[b]ecause the first stage separator 132 comprises an indispensable portion of the recovery tank in Conrad, which is

below the battery 168, Conrad's battery 168 is not disposed 'behind *substantially the entirety* of the recovery tank.'" *Id.* at 24–25 (emphasis added). Based on this alleged importance of first stage separator 132, Patent Owner adds that Conrad "fails to supply the required motivation to move the power source 22 of Xia in the manner claimed." PO Sur-reply 9–10.

Weighing the parties' arguments and evidence, Petitioner persuades us that it would have been obvious over the cited references to locate the battery in Xia's cleaner "rearwardly of the recovery tank," as recited in claim 1. Pet. 9–14, 18–19, 33–44; PO Resp. 8–12, 23–26; Pet. Reply 2–6, 18–20; PO Sur-reply 1–3, 9–10. As discussed above in Section II.C.1, Patent Owner's arguments rest on its erroneous construction of the claim language "rearwardly of the recovery tank" as meaning "behind substantially the *entirety* of the recovery tank." PO Resp. 8–12, 23–25 (emphasis added); PO Sur-reply 2–3, 6–8. As also explained above in Section II.C.1, Petitioner has the better construction of "rearwardly of the recovery tank": "at or near the rear of the recovery tank." Pet. Reply 1–6. Additionally, for the reasons explained below, Petitioner persuades us that, in view of the combined teachings of Xia, Conrad, and Kitsukawa, it would have been obvious to configure Xia's surface cleaning apparatus in a manner that would have met either party's proposed construction of the claim language "the battery housing disposed . . . rearwardly of the recovery tank."

As Petitioner notes, Conrad explains certain advantages of placing the battery "toward the rear of the cleaning unit," including rearwardly of a chamber of the recovery tank. Ex. 1005, 101:43–51; Pet. 14, 18–19, 34–38; Pet. Reply 19–20. Petitioner persuades us that, consistent with this disclosure, it would have been obvious to locate the battery in Xia's cleaner

in the position shown in Petitioner’s modified version of Xia’s Figure 2, reproduced below. Pet. 18–19, 33–44; Pet. Reply 18–20.



Petitioner’s modified version of Xia’s Figure 2 illustrates the location in which Petitioner contends it would have been obvious to place the battery in Xia’s cleaner in view of Conrad’s teachings. *E.g.*, Pet. 35–36. Petitioner also persuades us that in this position, the battery in Xia’s cleaner would have been “disposed . . . rearwardly of the recovery tank.” *Id.* at 36–44; Pet. Reply 18–20. Indeed, Petitioner persuades us that this positioning of the battery in Xia’s cleaner would have been located entirely rearwardly of Xia’s recovery tank. Pet. 36–44, 55–58; Pet. Reply 18–19.

Patent Owner does not persuasively counter Petitioner's contentions that it would have been obvious to place the battery in Xia's cleaner as shown above and that in this position the battery would have been "disposed . . . rearwardly of the recovery tank." Instead, Patent Owner's arguments focus on an embodiment of Conrad's recovery tank with a first separator that protrudes under Conrad's battery. PO Resp. 23–26; PO Sur-reply 9–10. These arguments fail to recognize that Petitioner's proposed combination of the prior art structures does not include Conrad's recovery tank. Instead, Petitioner's proposed combination combines Conrad's disclosure of placing the battery on the rear side of the upright body with Xia's recovery tank. As noted in the Institution Decision, Petitioner does not argue and need not show obviousness of the claim based on bodily incorporation of all of Conrad's teachings into Xia's cleaner. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

Additionally, Patent Owner's conclusory attorney argument about the importance of Conrad's first stage separator 132 to Conrad's cleaner does not persuasively rebut Petitioner's sound evidence that Conrad would have rendered it obvious to place a battery on Xia's cleaner in the location identified by Petitioner. PO Resp. 24–25; PO Sur-reply 9–10. Even if it is true that first stage separator 132 plays some important role in Conrad's cleaner, Patent Owner does not present persuasive evidence that first stage separator 132 contributes in any way to the disclosed advantages of placing the battery on the rear of the cleaner. Nor does Patent Owner provide persuasive evidence that a person of ordinary skill in the art would have considered first stage separator 132 important or useful in Xia's cleaner.

Moreover, even if Petitioner's combination did bodily incorporate a recovery tank from Conrad into Xia's surface cleaning apparatus, Petitioner's arguments and evidence are more persuasive than Patent Owner's for at least two reasons. First, Petitioner persuades us that Conrad teaches or suggests variations of recovery tanks that would not have a lower portion protruding rearwardly beneath the battery. Pet. 37–44; Pet. Reply 19–20. Second, as discussed above, Patent Owner's arguments that Conrad does not disclose a battery in the claimed location rest on Patent Owner's incorrect claim construction requiring the battery to be “behind substantially the entirety of the recovery tank.” PO Resp. 23–26; PO Sur-reply 9–10. Thus, to the extent Patent Owner is correct that Conrad's battery is not behind substantially the entirety of Conrad's recovery tank, that does not establish that Conrad's battery location differs from the claimed location. And Petitioner's arguments and evidence persuade us that Conrad's battery location meets Petitioner's correct claim construction: “at or near the rear of the recovery tank.” Pet. 12–14, 18–19, 33–44; Pet. Reply 18–20.

3. *“the rechargeable battery configured to selectively supply power to the suction source, the pump, and the brushroll motor” (claim 1)*

In the Petition, Petitioner asserts that “[t]he combination of Xia, Conrad, and Kitsukawa renders obvious this limitation.” Pet. 44. Addressing the claim's recitation of a rechargeable battery in a battery housing, Petitioner cites Kitsukawa. *Id.* at 45–47. Addressing the claim's recitation of a “battery configured to selectively supply power to the suction source, the pump, and the brushroll motor,” Petitioner argues that “Xia discloses that its battery power source 22 is ‘configured to selectively supply power to the suction source, the pump, and the brushroll motor’”:

Xia discloses that “[a] power source 22, such as a battery or power cord plugged into a household outlet, can be electrically coupled to the electrical components of the vacuum cleaner 10, including the motors 205, 503 and pump 226.” Ex. 1004, ¶80, Fig. 18 (showing the electrical connections between the power source, motors, and pump). One of these motors is a “suction motor/fan assembly 205 in fluid communication with the suction nozzle assembly 580 for generating a working air stream.” *Id.*, ¶78. And, “[a] suction power switch 25 between the suction motor/fan assembly 205 and the power source 22 can be selectively closed by the user, thereby activating the suction motor/fan assembly 205.” *Id.*, ¶80.

Id. at 44–45.

In its Response, Patent Owner disputes Petitioner’s position that Xia discloses the claimed “battery configured to selectively supply power to the suction source, the pump, and the brushroll motor.” PO Resp. 26–27.

According to Patent Owner, “[t]he cited portion of Xia does not meet the foregoing claim limitation for numerous reasons.” *Id.* at 27. Patent Owner argues that “Petitioner fails to show that Xia’s battery selectively supplies power to a subset of components or to the components individually. In other words, Petitioner has not shown that Xia’s battery, for example, is configured to energize the pump and the brushroll motor while not energizing the suction source.” *Id.* Patent Owner also argues that “Petitioner only identifies the suction source as being powered and does not point to any disclosure for the ‘pump’ or ‘brushroll motor’ as being powered.” *Id.* Patent Owner further argues that Petitioner does not show that Xia’s battery itself, as opposed to other components, meets the claim:

the portion of Xia relied upon by Petitioner merely describes the physical electrical connection between the “suction power switch 205” and the “suction motor/fan assembly 205” being engaged when a user turns on the power switch as shown in FIG. 18,

having nothing to do with the role of the rechargeable battery as recited in claim 1.

Id.

In its Reply, Petitioner responds that “[u]nder the proper [claim] construction, . . . the combination of Xia, Conrad, and Kitsukawa teaches this limitation.” Pet. Reply 21. Asserting that the claim language “does not require that each of the components must be ‘energized’ independently of each other,” Petitioner argues that Patent Owner premises its first argument on an erroneous construction. *Id.* Addressing Patent Owner’s argument that Petitioner only showed that Xia discloses supplying power to the vacuum source from the battery, Petitioner argues that the cited portions of Xia also disclose supplying power from the battery to the pump and the brushroll motor. *Id.* at 21–22. Petitioner additionally argues that even if the claim requires supplying power independently to each of the recited loads, the “limitation is rendered obvious by Xia nonetheless.” *Id.* at 22–23.

In its Sur-reply, Patent Owner reiterates its position that “[a]s properly construed, a battery configured to ‘selectively supply power’ to the suction source, the pump, and the brushroll motor means a battery configured to ‘energize multiple loads independently of each other.’” PO Sur-reply 10–11.

Patent Owner further counters Petitioner’s Reply by arguing that “Xia simply states that a “power source 22 . . . can be electrically coupled to the electrical components of the vacuum cleaner”:

The power switches 25, 27 and the trigger 113 noted in Petitioner’s Reply instead relate to the ability of *the user* to collectively engage the suction motor 205, the brush motor 503, and the pump 226, respectively, but not the independent ability of the rechargeable battery to selectively energize the suction source, the pump, and the brushroll motor recited in claim 1.

Id. at 11.

Weighing the parties' arguments and evidence, Petitioner persuades us that Xia, Conrad, and Kitsukawa would have rendered obvious claim 1's limitation of "a rechargeable battery provided within the battery housing, the rechargeable battery configured to selectively supply power to the suction source, the pump, and the brushroll motor." Pet. 44–47; Pet. Reply 21–24. As explained in Section II.C.2 above, we do not agree with Patent Owner's position that this claim limitation requires independently energizing electrical loads. PO Resp. 12–16, 26–27; PO Sur-reply 3–6, 10–11. Instead, we agree with Petitioner that the limitation encompasses a configuration to supply power simultaneously to the suction source, the pump and the brush motor. Pet. Reply 7–12. Petitioner persuades us that Xia discloses such a configuration. Pet. 44–45; Pet. Reply 21–22.

We do not find persuasive Patent Owner's counter argument that the Petition only shows that Xia discloses powering its suction source. PO Resp. 27. As Petitioner notes, Xia discloses its battery can be electrically coupled to "motors 205, 503, and pump 226." Pet. 44 (citing Ex. 1004 ¶ 80, Fig. 18); Pet. Reply 21 (citing Pet. 44; Ex. 1004 ¶ 80, Fig. 18). And as Petitioner further explains, Xia's motor 205 is a "suction motor/fan assembly," Xia's motor 503 is "a dedicated brushroll motor," and pump 226 is a pump. Pet. Reply 21–22; Ex. 1004 ¶¶ 63, 80. Thus, Petitioner persuades us that a person of ordinary skill in the art would have understood Xia as teaching that its battery can supply power simultaneously to "suction motor/fan assembly 205, brushroll motor 503, and pump 226, meeting our interpretation of claim 1.

Moreover, even if we did agree with Patent Owner that claim 1 requires a configuration to supply power to the suction motor, the pump, and the brushroll motor independently, Petitioner persuades us that Xia discloses that, too. Pet. Reply 22–23. For example, Petitioner persuades us that Xia’s battery can independently supply power to suction motor/fan assembly 205 via suction power switch 25. *Id.* at 23; Ex. 1004 ¶ 80, Fig. 18; Ex. 1003 ¶¶ 197–198. And Petitioner persuades us that Xia’s battery can independently supply power to pump 226 based on actuation of trigger 113. Pet. Reply 23; Ex. 1004 ¶ 80; Ex. 1003 ¶¶ 197–198. Furthermore, Petitioner persuades us that Xia’s battery can independently supply power to brushroll motor 503 via brush power switch 27. Pet. Reply 23; Ex. 1004 ¶ 80, Fig. 18; Ex. 1003 ¶¶ 197–198. As discussed above in Section II.C.2 Patent Owner’s argument that the rechargeable battery acting alone must independently supply power to the different loads is unpersuasive, given that Patent Owner does not demonstrate the ’383 patent even discloses such an approach. PO Resp. 27; PO Sur-reply 11.

4. *Claim 17*

Depending from claim 1, claim 14 adds certain limitations, including “a status user interface on the frame which communicates a condition or status of the surface cleaning apparatus to the user.” Ex. 1001, 31:58–64. Depending from claim 14, claim 17 adds that “the status user interface comprises a display, the display including multiple status indicators including a battery status and a self-cleaning status.” *Id.* at 32:10–12.

Addressing this limitation of claim 17, Petitioner cites Xia, Conrad, and Kitsukawa. Pet. 73 (citing Ex. 1003 ¶¶ 201–208). Petitioner asserts that Xia discloses lights for providing user feedback, a battery, and a self-

cleaning mode. *Id.* (citing Ex. 1004 ¶¶ 80, 90; Ex. 1003 ¶ 202). Petitioner argues that Conrad discloses a display for user feedback. *Id.* at 73–74 (citing Ex. 1005, 99:31–33, 100:38–52; Ex. 1003 ¶ 205). According to Petitioner, it would have been obvious in view of the references to construct Xia’s surface cleaning apparatus with the display and multiple status indicators of claim 17. *Id.* at 74 (citing Ex. 1003 ¶¶ 207–208; Ex. 1005, 99:31–33, 100:38–52). Arguing that “[s]uch a modification is no more than the predictable use of a prior art element according[] to its established function,” Petitioner reasons that adding such a display “would allow Xia’s cleaner 10 to provide information and feedback to a user such that the cleaner 10 may provide an improved user experience and/or may allow a user to more effectively use the cleaner 10 and/or timely attend to cleaner maintenance needs.” *Id.* (citing Ex. 1003 ¶ 207; *KSR*, 550 U.S. at 417).

In its Response, Patent Owner counters that “[t]he Petition fails to show that the proposed combination of Xia, Conrad and Kitsukawa teaches or suggests this claim limitation.” PO Resp. 28. Patent Owner notes that Petitioner concedes Xia does not disclose everything in the claim limitation. *Id.* (citing Pet. 73; Ex. 1003 ¶ 204). Patent Owner also argues that “there is no indication in Conrad of its user feedback apparatus as multiple status indicators including a battery status and a self-cleaning status.” *Id.* at 29. Patent Owner further argues that “Kitsukawa does not disclose multiple status indicators including a self-cleaning status.” *Id.* at 32. Patent Owner also argues that “the Petition does not provide any apparent reason to modify Xia to present a battery status and a self-cleaning status.” *Id.* at 30.

In its Reply, Petitioner counters that Patent Owner’s arguments fail to address Petitioner’s position, which it argues “is based on what would have

been obvious to a person of ordinary skill in the art in view of the prior art teachings of the usefulness of status lights (as opposed to an explicit teaching of these particular status lights).” Pet. Reply 24–25. Given this, Petitioner suggests that Patent Owner’s argument that Conrad does not explicitly disclose a display with a battery status indicator and a self-cleaning indicator is inapposite. *Id.* at 25.

In its Sur-reply, Patent Owner responds that, because Xia does not disclose claim 17’s limitation and Conrad does not disclose the claim 17’s limitation, “[t]he Petition . . . leaves a gap between the subject matter of claim 17 and the disclosures of Xia and Conrad.” PO Sur-reply 12. Patent Owner also maintains that Petitioner did not demonstrate a motivation to modify the prior art disclosures in the manner proposed by Petitioner. *Id.* at 13–14.

Petitioner persuades us that it would have been obvious in view of Xia, Conrad, and Kitsukawa to configure Xia’s surface cleaning apparatus with a status user interface that “comprises a display, the display including multiple status indicators including a battery status and a self-cleaning status.” Pet. 73–74; Pet. Reply 24–25; Ex. 1003 ¶¶ 201–208. All three references disclose components for providing user feedback. Xia discloses using LED lights for the purpose of providing user feedback. Ex. 1004 ¶ 80; Ex. 1003 ¶ 202; Pet. 73. And Kitsukawa discloses providing user feedback with certain lights. Ex. 1006 ¶ 39; Ex. 1003 ¶ 206. Conrad similarly discloses using a display that serves as a “user feedback apparatus” to “communicate” and “inform the user.” Ex. 1005, 99:31–33, 100:38–52; Ex. 1003 ¶ 205; Pet. 73–74. Petitioner persuades us that, consistent with Conrad’s disclosure of these purposes of its display, a person of ordinary

skill in the art would have been motivated to modify Xia's surface cleaning apparatus with a display because this have "provide[d] information and feedback to a user such that the cleaner 10 may provide an improved user experience and/or may allow a user to more effectively use the cleaner 10 and/or timely attend to cleaner maintenance needs." Pet. 74; Ex. 1003 ¶ 207.

Additionally, the evidence demonstrates that it would have been obvious when constructing Xia's surface cleaning apparatus with a display to provide a battery status indicator. Pet. 73–74; Ex. 1003 ¶¶ 201–208. As Petitioner notes, Xia discloses configuring its surface cleaning apparatus with a battery as a power source. Ex. 1004 ¶ 80; Pet. 73; Ex. 1003 ¶ 203. And Kitsukawa discloses a battery status indicator for its battery-powered vacuum. Ex. 1006 ¶ 39; Ex. 1003 ¶ 206. Given these disclosures, and consistent with Petitioner's and Mr. Jones's observations about Conrad's disclosure of the utility of status indicators, we find that a person of ordinary skill in the art would have recognized that a user of Xia's surface cleaning apparatus would have benefited from a battery status indicator like Kitsukawa's. Pet. 73–74; Pet. Reply 25; Ex. 1003 ¶¶ 205–208.

Petitioner also persuades us that it would have been obvious when constructing Xia's surface cleaning apparatus with a display to provide a self-cleaning status indicator. Pet. 73–74; Ex. 1003 ¶¶ 201–208. As Petitioner notes, Xia's surface cleaning apparatus has a self-cleaning mode. Ex. 1004 ¶ 90; Pet. 73; Ex. 1003 ¶¶ 203–204. Petitioner's argument that "[g]iven that Xia's self-cleaning mode is a 'designated cleaning mode,' . . . it would have been obvious to a POSITA that the display should provide an indication that the cleaner 10 is (and/or is not) in the self-cleaning mode so

as to indicate a self-cleaning status” is logical and supported by Mr. Jones’s testimony. Pet. 74 (citing Ex. 1004 ¶ 90; Ex. 1003 ¶ 208). In view of this, and consistent with Petitioner’s and Mr. Jones’s observations about Conrad’s disclosure of the utility of status indicators, we find that a person of ordinary skill in the art would have recognized that a user of Xia’s surface cleaning apparatus would have benefited from a status indicator informing the user when the apparatus is operating in self-cleaning mode. *Id.* at 73–74; Pet. Reply 25; Ex. 1003 ¶¶ 203–208.

Patent Owner does not persuasively counter Petitioner’s arguments and evidence. For example, Patent Owner’s argument that each of Xia, Conrad, and Kitsukawa fails to teach the claim limitation is not a persuasive rebuttal to Petitioner’s argument that the claim limitation would have been obvious over the references collectively. PO Resp. 28–32; PO Sur-reply 11–12; *See also In re Merck & Co., Inc.*, 800 F.2d 1091, 1097–1098 (Fed. Cir. 1986) (“Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references”). Additionally, we do not agree with Patent Owner’s argument that Petitioner has not provided a reason that a person of ordinary skill the art would have modified Xia’s surface cleaning apparatus with the claimed indicators. PO Resp. 30–31; PO Sur-reply 12–14. For the reasons explained above, Petitioner persuades us that, in view of the teachings of Xia, Conrad, and Kitsukawa, a person of ordinary skill in the art would have been motivated to configure Xia’s surface cleaning apparatus with indicators for battery status and self-cleaning status to better inform the apparatus’s user about those aspects of the apparatus’s status.

III. CONCLUSION

In summary:

Claims	35 U.S.C. §	References/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–29	103	Xia, Conrad, Kitsukawa	1–29	
Overall Outcome			1–29 ⁵	

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–29 of U.S. Patent No. 10,973,383 B1 have been shown, by a preponderance of the evidence, to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, the 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.

⁵ Should Bissell wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Bissell’s attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding, 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Bissell chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Bissell of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. §§ 42.8(a)(3), (b)(2).

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FOR PETITIONER:

Brian M. Buroker
Ryan Iwahashi
Nathan Curtis
Shuo Josh Zhang
GIBSON, DUNN & CRUTCHER LLP
bburoker@gibsondunn.com
riwahashi@gibsondunn.com
ncurtis@gibsondunn.com
szhang@gibsondunn.com

FOR PATENT OWNER:

R. Michael Azzi
Vito A. Ciaravino
WARNER NORCROSS + JUDD LLP
mazzi@wnj.com
vciaravino@wnj.com