

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

DYSON TECHNOLOGY LIMITED,
Patent Owner.

IPR2023-01322
Patent 10,433,687 B2

Before JAMES A. TARTAL, FRANCES L. IPPOLITO, and
MATTHEW S. MEYERS, *Administrative Patent Judges*.

TARTAL, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4

I. INTRODUCTION

SharkNinja, Inc., SharkNinja Operating LLC, SharkNinja Management LLC, and SharkNinja Sales Company (“Petitioner”)¹ filed a Petition pursuant to 35 U.S.C. §§ 311–319 requesting an *inter partes* review of claims 1–4, 8, and 10 (“the Challenged Claims”) of U.S. Patent No. 10,433,687 B2 (Ex. 1001, “the ’687 patent”). Paper 2 (“Pet.”). Dyson Technology Limited (“Patent Owner”)² filed a Preliminary Response. Paper 6.

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314(b) (2018); 37 C.F.R. § 42.4(a) (2023). An *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Upon consideration of the Petition, the Preliminary Response, and the evidence of record, we conclude that the information demonstrates a reasonable likelihood that Petitioner would prevail in showing the unpatentability of at least one of the Challenged Claims. Accordingly, we institute an *inter partes* review.

II. BACKGROUND

A. The ’687 Patent

The ’687 patent relates to a “handheld vacuum cleaner comprising a cyclonic separating unit.” Ex. 1001, 1:11–12. The vacuum “can be emptied

¹ Petitioner further identifies SharkNinja Midco LLC, SharkNinja Appliance LLC, SharkNinja Appliance UK Holdco Limited, and SharkNinja Global SPV, Ltd., as real-parties-in-interest. Pet. vii.

² Patent Owner identifies no additional real parties-in-interest. Paper 4, 1.

by pointing the cyclonic separating unit away from the user and opening the end portion while maintaining a natural grip on the handle.” *Id.* at 1:52–55.

Figure 2 of the ’687 patent, reproduced below, illustrates a side-view of the vacuum.

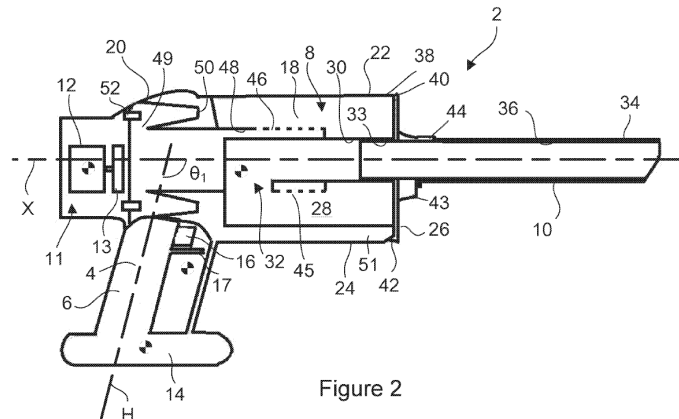


Figure 2

Figure 2 shows, in part, handheld vacuum cleaner 2 with elongate handle 6 having handle axis H, cyclonic separating unit 8 having longitudinal axis X, and cleaning tool 10 secured to cyclonic separating unit 8 at the end furthest from handle 6. *Id.* at 2:45–52, 2:64–66. “[H]andle 6 is arranged at an angle Θ_1 with respect to the longitudinal axis X of the cyclonic separating unit 8 such that the handle 6 is in a pistol grip configuration.” *Id.* at 2:61–64. The ’687 patent states that the “handle may be inclined with respect to the cyclonic separating unit to form an angle of not less than 100 degrees and not greater than 125 degrees between the handle and the longitudinal axis of the cyclonic separating unit.” *Id.* at 1:60–62. In Figure 2, “handle axis H is arranged at 110 degrees with respect to the longitudinal axis X of the cyclonic separating unit 8.” *Id.* at 2:64–66. According to the ’687 patent, the “alignment of the axis X of the cyclonic separating unit 8 with the cleaning tool 10 makes the vacuum cleaner 2 compact and enables the end of the cyclonic separating unit 8 to be inserted into confined spaces during cleaning.” *Id.* at 5:5–8.

Figure 8, reproduced below, illustrates the vacuum with end wall 26 in an open position to empty the vacuum.

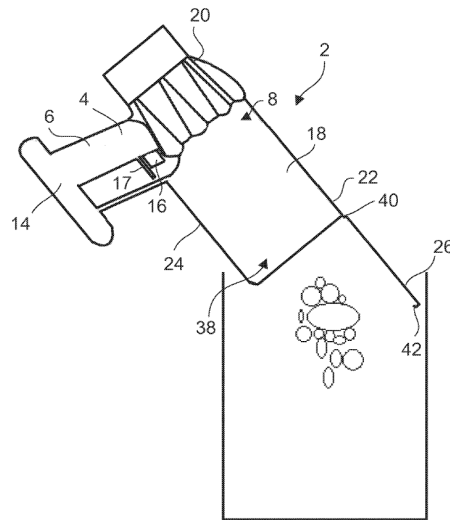


Figure 8 illustrates vacuum 2, handle 6, end wall 26, and catch 42. *Id.* To empty dirt from the vacuum, the user disconnects cleaning tool 10, grips handle 6, points vacuum cleaner 2 towards a waste bin, releases catch 42, and pivots end wall 26 from its closed position into its open position. *Id.* at 5:61–6:1.

B. Illustrative Claim

Petitioner challenges claims 1–4, 8, and 10 of the '687 patent. Pet. 1. Claim 1 is an independent claim. Claims 2–4, 8, and 10 depend from claim 1. Claim 1 is illustrative of the claimed subject matter and is reproduced below.

1. A handheld vacuum cleaner, comprising:
 - a handle by which the vacuum cleaner is supported during normal use;
 - a cyclonic separating unit having a longitudinal axis and a dirt collector at one end of the cyclonic separating unit,the cyclonic separating unit comprising an end wall having a closed configuration in which dirt is retained within the dirt collector by the end wall and an open configuration for the removal of dirt from the dirt collector, wherein the end wall

is movable relative to the longitudinal axis and, when the end wall is in the closed configuration, the longitudinal axis extends through a region bounded by a perimeter of the end wall,

wherein the handle has a pistol grip configuration in which the handle is inclined with respect to the cyclonic separating unit to form an angle of not less than 85 degrees and not greater than 140 degrees between a handle axis and the longitudinal axis of the cyclonic separating unit, and wherein the handle axis and the longitudinal axis intersect within the vacuum cleaner.

Ex. 1001 at 6:23–43.

C. Asserted Grounds of Unpatentability

Petitioner asserts that the Challenged Claims are unpatentable based on the following grounds:

Claim(s) Challenged	35 U.S.C. §³	Reference(s)/Basis
1–4, 8, 10	103	Conrad ’630 ⁴ , Conrad ’787 ⁵
1–4, 8, 10	103	Conrad ’630, Dyson ⁶
1–4, 8, 10	103	Matsumoto ⁷ , Conrad ’787
1–4, 8, 10	103	Matsumoto, Dyson

³ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. We apply the AIA version of § 103 here, because the ’687 patent does not reflect a priority date earlier than the effective date of the AIA. *See* Ex. 1001, codes (22), (30), (65).

⁴ U.S. Patent App. Pub. No. US 2011/0314630 A1, published Dec. 29, 2011 (Ex. 1004, “Conrad ’630”).

⁵ U.S. Patent App. Pub. No. US 2016/0174787 A1, published June 23, 2016 (Ex. 1006, “Conrad ’787”).

⁶ World Intellectual Property Organization App. Pub. No. WO 2008/009888 A1, published Jan. 24, 2008 (Ex. 1007, “Dyson”). Patent Owner refers to this reference as “WO ’888.” *See* Prelim. Resp. 2 n.1. For consistency, we refer to Exhibit 1007 as “Dyson” and direct the Parties to do the same in all future briefing.

⁷ European Patent No. EP 1,199,023 B1, issued Mar. 17, 2010 (Ex. 1005, “Matsumoto”).

Petitioner's contentions are supported by the Declaration of Joseph Fester, dated August 21, 2023. Ex. 1003.

D. Related Proceedings

Petitioner and Patent Owner identify no related proceedings. Pet. vii; Paper 4, 1.

III. ANALYSIS

A. Summary of Asserted Prior Art References

1. Summary of Conrad '630

Conrad '630, titled "Hand Vacuum Cleaner with Removable Dirt Chamber," describes a "cyclonic surface cleaning apparatus" with "a simplified structure for emptying the surface cleaning apparatus." Ex. 1004, code (54), ¶ 6. The apparatus comprises "an airflow passage extending from a dirty air inlet to a clean air outlet with a first cyclone unit positioned in the airflow passage." *Id.* ¶ 8. The cyclone unit includes a dirt collection chamber. *Id.*

Figure 1 is a side view schematic of the vacuum, and is reproduced below.

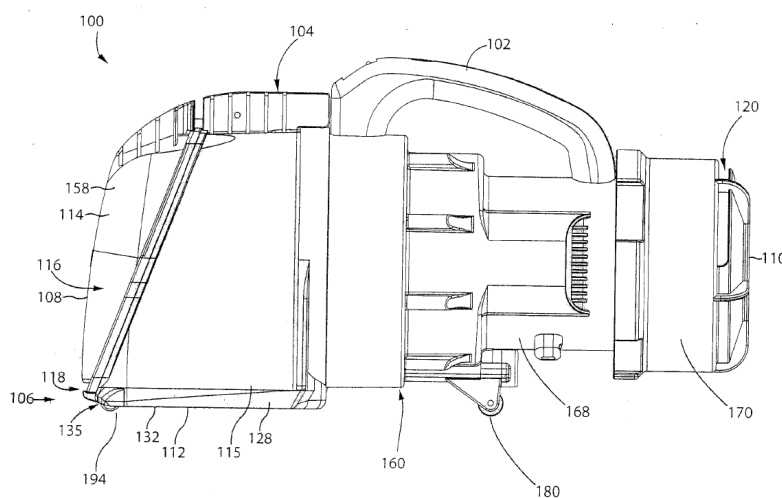


Figure 1 shows vacuum 100, including handle 102, nozzle 112, cyclone unit 114, dirty air inlet 118, and clean air outlet 120. *Id.* ¶¶ 52–54.

Conrad '630 states that “[i]n alternate examples, handle 102 may be provided elsewhere on the vacuum cleaner 100, for example at the rear 110 and may be of any design.” *Id.* ¶ 52. The nozzle is part of the dirt collecting unit and may be removably mounted to a motor housing, eliminating the need for a “skeleton or backbone,” which may keep the weight of the vacuum lower. *Id.* ¶ 19.

2. Summary of Conrad '787

Conrad '78, is titled “Surface Cleaning Apparatus” and “relates to a type of stick vacuum cleaner wherein a hand vacuum cleaner is removably mounted to a drive handle and provides motive power to draw dirty air into the surface cleaning head.” Ex. 1006, code (54), ¶ 2. Figure 12 of Conrad '787's, reproduced below, illustrates an exploded view of a vacuum.

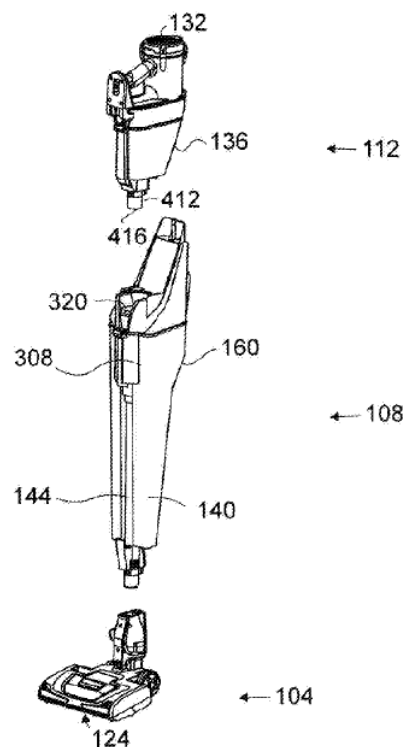


Figure 12 shows a vacuum that includes handvac 112 at the top, upright section 108 in the middle, and surface cleaning head 104 at the bottom, each

of which “may be removably connected to each other so as to be able to be assembled in a number of different combinations.” Thereby providing “a number of different modes of operation.” *Id.* ¶ 233.

Figure 78, reproduced below, is a side view of handvac 112, showing the device resting on a horizontal surface.

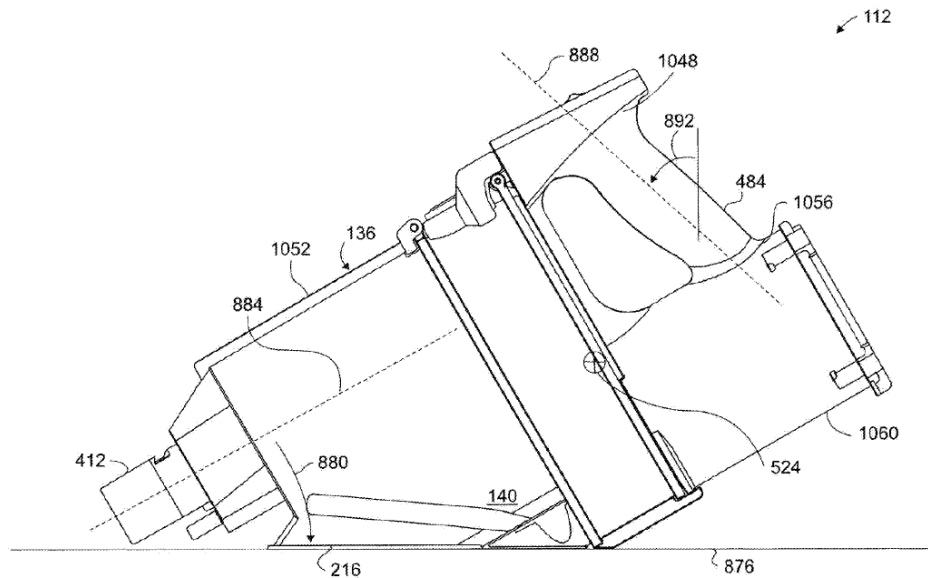


Figure 78 shows handvac 112, on surface 876, and illustrates nozzle axis 884, at angle 880 to surface 876, center of gravity 524, and handle 484, at angle 892 to vertical. *Id.* ¶¶ 312–317. “[T]her center of gravity 524 may be vertically aligned below handle 484 in comfortable in-use orientation.” *Id.* ¶ 314.

3. Summary of Dyson

Dyson is titled “A Hand-Held Cleaning Appliance” and “relates to a hand-held vacuum cleaner.” Ex. 1007, code (54), 1:4–5. Dyson seeks “to provide a hand-held vacuum cleaner in which the arrangement of the handgrip, the motor and fan assembly and the power source allow the hand-held vacuum cleaner to be manipulated easily and comfortably.” *Id.* at 2:4–5. The “elongate handle” of the vacuum described by Dyson “lies transverse to the longitudinal axis of the suction conduit,” and, preferably, lies at an

angle “close to a right angle” to the longitudinal axis, such that “a user is able to maintain a comfortable wrist position and movement of the hand-held vacuum cleaner feels comfortable.” *Id.* at 2:10–23.

Figure 2, reproduced below, shows a side view the vacuum.

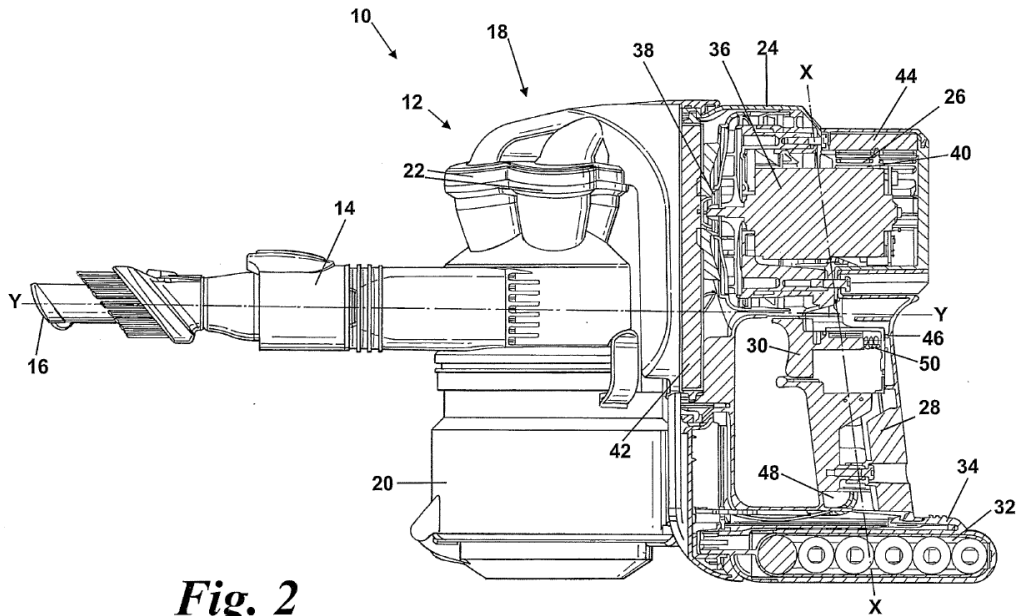


Fig. 2

Figure 2 shows handheld vacuum cleaner 10, including motor housing 24, air flow generator 36, with inlet 38 and outlet 40, pre-motor filter 42, post-motor filter 44, handgrip 28, and power source 32. *Id.* at 4:1–16.

Dyson states as follows:

The location of the handgrip 28 between the airflow generator 36 and the power source 32 allows the hand-held vacuum cleaner 10 to be manipulated easily in use. This is because the user's hand will be located between the two heaviest components of the hand-held vacuum cleaner 10. This results in a "dumbbell-like" configuration in which the weight of the hand-held vacuum cleaner 10 is distributed on both sides of the user's hand.

Id. at 6:6–11.

4. Summary of Matsumoto

Matsumoto is title “Vacuum Cleaner” and “relates to a vacuum cleaner having a cyclone dust collecting part that separates dust and dirt by

forming suction air into a whirling stream.” Ex. 1005, code (54), ¶ 1.
Matsumoto seeks “to provide a vacuum cleaner that has a miniaturized cyclone dust collecting part but that nevertheless offers improved operability when refuse is disposed of and that is less prone to failure in the electric blower thereof.” *Id.* ¶ 9.

Figure 25, reproduced below, is a side view of one embodiment of Matsumoto.

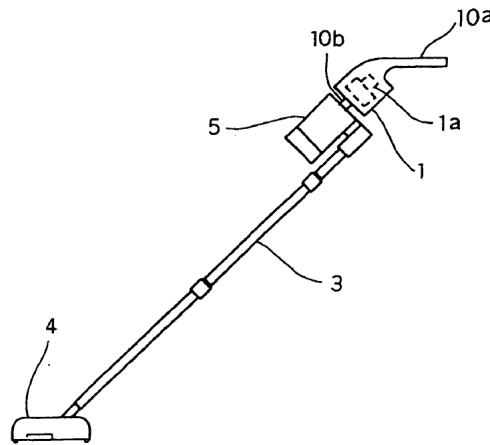


Figure 25 shows an “upright type” vacuum, with handle 10a, body 1, dust collecting part 5, coupling pipe 10b, electric blower 1a, suction port body 4, and pipe 3. *Id.* ¶¶ 27, 38, 60.

Figure 2, reproduced below, shows an isometric drawing of the handle and dust collector portion of the vacuum.

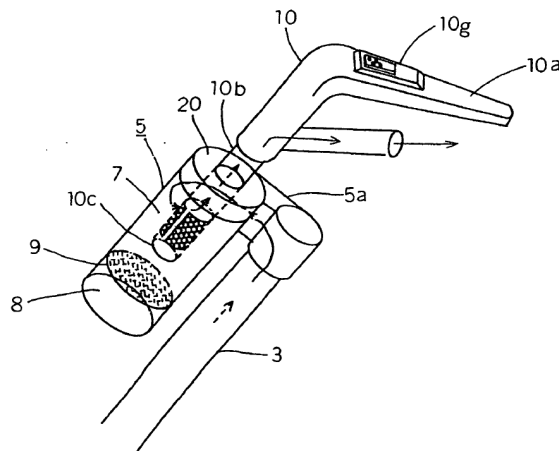


Figure 2 shows handle 10a and dirt collecting part 5, which includes first dust collecting chamber 7, second dust collecting chamber 8, separated by meshed partition wall 9. *Id.* ¶ 32.

B. Discretionary Denial of the Petition Under Section 325(d)

We have discretion to deny review when “the same or substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. § 325(d). In evaluating the exercise of discretion to deny institution under Section 325(d), we use the following two-part framework: (1) determining whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, determining whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *Advanced Bionics, Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 7–8 (PTAB Feb. 13, 2020) (precedential).

In applying the two-part framework, we may consider several non-exclusive factors, including:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- (d) the extent of the overlap between the arguments made during examination and the manner in which petitioner relies on the prior art or patent owner distinguishes the prior art;

(e) whether petitioner has pointed out sufficiently how the examiner erred in its evaluation of the asserted prior art; and

(f) the extent to which additional evidence and facts presented in the petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017-01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017) (precedential as to Section III.C.5, first paragraph) (“*Becton, Dickinson*”). *Becton, Dickinson* factors (a), (b), and (d) relate to whether the art or arguments presented in the Petition are the same or substantially the same as those previously presented to the Office. *Advanced Bionics*, Paper 6 at 10. Factors (c), (e), and (f) “relate to whether the petitioner has demonstrated a material error by the Office” in its prior consideration of that art or arguments. *Id.* Only if the same or substantially the same art or arguments were previously presented to the Office do we consider whether a petitioner has demonstrated a material error by the Office. *Id.* “At bottom, this framework reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Id.* at 9.

1. Consideration of Whether the Same or Substantially the Same Art Was Presented to the Office

Under the *Advanced Bionics* framework, we first consider whether Petitioner asserts the same or substantially the same art or arguments that previously were presented to the Office. *Advanced Bionics*, Paper 6 at 8. Petitioner relies upon four references, Conrad ’787, Conrad ’630, Dyson, and Matsumoto. Petitioner acknowledges that Conrad ’787 is cited by the ’687 patent. Pet. 99. Petitioner also states that “a family member” of Conrad ’630 “was cited by the Examiner” and that “the Examiner did not apply that family member during prosecution of the ’687 patent.” *Id.* Further, according to Petitioner, Dyson and Matsumoto were not before the

Examiner during prosecution. *Id.* Petitioner also argues that the grounds asserted in this proceeding “are non-cumulative of the art considered because Conrad[]’630 and Matsumoto both show a dust bin having the same configuration as claimed by the Challenged Claims.” *Id.* at 99–100.

Patent Owner argues that “a continuation of Conrad ’630, was considered by the Examiner and includes the same disclosure.” Prelim. Resp. 21 (citing Ex. 2009 ¶ 1). Patent Owner further argues that Krebs⁸ was used during examination “as an anticipatory reference” and “shares important similarities and disclosures with Conrad ’630.” *Id.* Patent Owner concedes that Dyson “was not of record,” but argues “two references having similar disclosures” were considered by the Examiner and that “all three references illustrate the same device in their figures.” *Id.* at 22–23 (citing Ex. 1007, Fig. 2; Ex. 2002, Fig. 2; Ex. 2010, Fig. 2).

Patent Owner does not suggest that Matsumoto was previously considered during prosecution of the ’687 patent. Instead, Patent Owner argues that Matsumoto, as well as Dyson, “have been considered in various invalidation proceedings in China” concerning “a Chinese counterpart of the ’687 Patent,” and that neither Dyson nor Matsumoto “was found to be invalidating prior art” in the Chinese proceedings. *Id.* at 17.

We find that Patent Owner has not shown that the same or substantially the same art previously was presented to the Office or the same or substantially the same arguments previously were presented to the Office. At a minimum, Patent Owner does not show that Matsumoto was previously presented to the Office or that the teachings of Matsumoto are cumulative to

⁸ U.S. Patent Publication No. 2017/0071426 A1, published Mar. 16, 2017 (Ex. 2001, “Krebs”).

other art previously before the Office. Moreover, Patent Owner concedes that the Examiner “chose not to combine the references to form an obviousness rejection based on a combination of Krebs and Conrad ’787.” Prelim. Resp. 22. As noted above, Patent Owner contends that the teaching of Krebs, which was before the Office, is similar to Conrad ’630, yet the Examiner chose not to consider those teachings in combination with Conrad ’787 to form an obviousness rejection. *See id.* at 21. Accordingly, we find Patent Owner has not shown that the “same arguments” were previously considered by and resolved by the Office.

2. Consideration of Whether Petitioner Has Shown the Office Erred in a Manner Material to Patentability

Patent Owner asserts that, “[w]here substantially identical references were previously before the Examiner,” the burden is on Petitioner to show how the Examiner erred. Prelim. Resp. 23–24. Patent Owner, however, has not shown that substantially identical references were previously before the Examiner, as explained above. Moreover, we find Petitioner has shown how the Examiner erred by explaining that the Examiner failed to consider the obviousness of the claimed subject matter over the prior art relied on by Petitioner, which, we note, Patent Owner argues is substantially similar to the art previously before the Examiner. Thus, even if we were to find that the same or substantially the same art or arguments previously were presented to the Office, the Examiner’s implicit decision to choose “not to combine the references to form an obviousness rejection,” as Patent Owner acknowledges, was material error. *See* Prelim. Resp. 22.

For example, according to Patent Owner, both Krebs and Conrad ’630 “are missing at least the ‘wherein the handle axis and the longitudinal axis intersect within the vacuum cleaner’ limitation of Claim 1 of the ’687

Patent.” Prelim. Resp. 21. Petitioner, however, relies on Conrad ’787 as teaching this limitation and asserts unpatentability based on obviousness over Conrad ’787 in combination with Conrad ’630, a combination of teachings that Patent Owner does not suggest was considered by the Examiner. *See* Pet. 37–38. Petitioner also argues that the Examiner allowed the Challenged Claims over the art the Examiner considered because the claims were amended to recite “wherein the end wall is movable relative to the longitudinal axis and, when the end wall is in the closed configuration, the longitudinal axis extends through a region bounded by a perimeter of the end wall.” Pet. 15 (citing Ex. 1002, 33–38). According to Petitioner, “[t]his additional limitation purportedly distinguishes the claimed dirt collection chamber of the ’687 patent from . . . Conrad ’787, which has a dirt collection chamber 188 having a bottom wall 216 that is beneath the longitudinal axis of the vacuum and pivots open in a direction away from that axis.” *Id.* (citing Ex. 1006 ¶¶ 200, 202, 364, Fig. 96; Ex. 1003 ¶ 26). Petitioner relies on Conrad ’630 and Matsumoto as teaching this additional limitation, which Patent Owner does not show was considered by the Examiner. *See* Pet. 34–35, 77–78. For the foregoing reasons, we decline to exercise discretion to deny institution based on Section 325(d).

C. Legal Standards for Obviousness

A patent claim is unpatentable for obviousness if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). In *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness that requires

consideration of four factors: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of nonobviousness such as “commercial success, long felt but unsolved needs, failure of others, etc.” *Id.* at 17–18; *KSR*, 550 U.S. at 407.

“Whether an ordinarily skilled artisan would have been motivated to modify the teachings of a reference is a question of fact.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1327 (Fed. Cir. 2016) (citations omitted). “[W]here a party argues a skilled artisan would have been motivated to combine references, it must show the artisan ‘would have had a reasonable expectation of success from doing so.’” *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1360–61 (Fed. Cir. 2017) (quoting *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1068–69 (Fed. Cir. 2012)).

D. Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted).

Petitioner contends a person of ordinary skill in the art at the time of the invention “would have had 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 (or other comparable industrial design).” Pet. 15–16 (citing Ex. 1003 ¶¶ 56–58). Petitioner also contends

“[a]dditional education could substitute for experience, and vice versa.” *Id.* Patent Owner does not contest Petitioner’s proposed level of ordinary skill in the art. Prelim. Resp. 3.

We find that the ’687 patent and the cited prior art references reflect the appropriate level of skill at the time of the claimed invention and that the level of appropriate skill reflected in these references and in the ’687 patent is consistent with the definition of a person of ordinary skill in the art proposed by Petitioner. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

E. Claim Construction

In this proceeding we construe claims using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b). *See* 37 C.F.R. § 42.100(b). The claim construction standard includes construing claims in accordance with the ordinary and customary meaning of such claims as understood by one of ordinary skill in the art at the time of the invention. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc). In construing claims in accordance with their ordinary and customary meaning, we take into account the specification and prosecution history. *Phillips*, 415 F.3d at 1315–17.

Petitioner proposes no express construction and contends that “no construction of any claim term is necessary for the Board to resolve this Petition.” Pet. 5. Patent Owner proposes no express construction and states “that construction of any claim term is not necessary for the Board to deny the Petition.” Prelim. Resp. 3. Only terms that are in controversy need to be construed, and these need be construed only to the extent necessary to resolve the controversy. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368,

1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). In the absence of any dispute over the construction of any claim term, we find no express construction necessary for purposes of this Decision.

F. Alleged Obviousness over Conrad ’630 and Conrad ’787

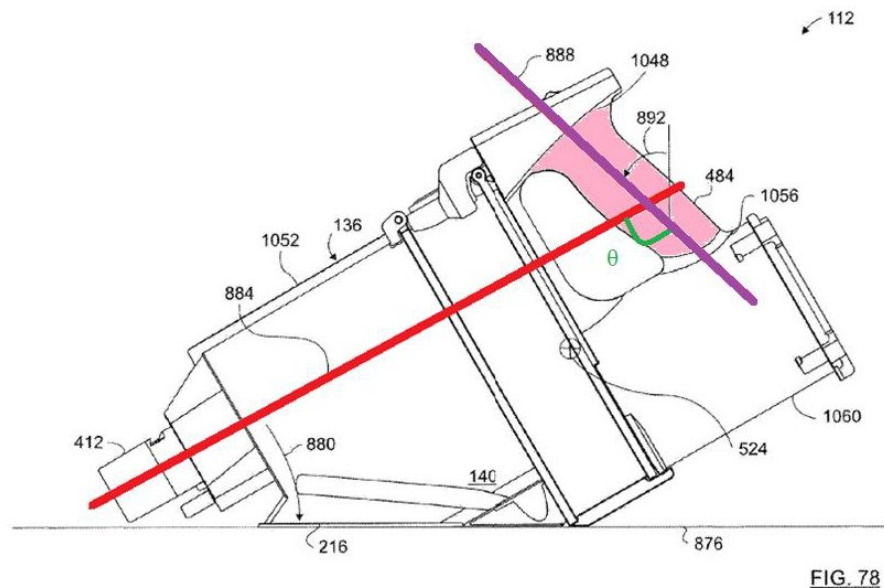
Petitioner contends that the combination of Conrad ’630 and Conrad ’787 renders the subject matter of the Challenged Claims obvious. Pet. 16–49. At this stage of the proceeding, Patent Owner does not dispute that the asserted combination teaches each of the limitations of the Challenged Claims. *See* Prelim. Resp. 24–38. Instead, Patent Owner argues that Petitioner provides insufficient evidence to support the asserted combination and that Conrad ’787 “teaches away” from the asserted combination. *Id.*

1. Claim 1

Petitioner contends each of the limitations of claim 1 is taught by the combination of Conrad ’630 and Conrad ’787, as supported by Mr. Fester. Pet. 28–41; Ex. 1003 ¶¶ 77–101. Petitioner contends Conrad ’630 describes a handheld vacuum cleaner 100, supported by handle 102, with cyclone unit 114 and dirt collection chamber 124. Pet. 28–33 (citing, e.g., Ex. 1004 ¶¶ 6, 52, 70, 74, Figs. 1–8). Petitioner relies on front wall 158 of Conrad ’630 as corresponding to the recited end wall with a closed and open configuration movable relative to the longitudinal axis and explains that when front wall 158 is in the closed configuration, longitudinal axis 123 extends through a region bounded by a perimeter of front wall 158. *Id.* at 34–36 (citing, e.g., Ex. 1004 ¶¶ 76–77, 86–87, Figs. 1, 5, 6).

With regard to the recited “pistol grip configuration” of the handle, Petitioner concedes that Conrad ’630 does not “explicitly disclose” the claimed configuration, but instead shows handle 102 mounted on an upper portion of vacuum cleaner 100. *Id.* at 37 (citing Ex. 1004 ¶ 52). Petitioner notes that Conrad ’630 also expressly states that “handle 102 may be provided elsewhere on the vacuum cleaner 100, for example at the rear 110 and may be of any design.” *Id.* (quoting 1004 ¶ 52). Petitioner further relies on handle 484 of Conrad ’787 as teaching the claimed pistol grip configuration. *Id.* (citing Ex. 1006, ¶¶ 312, 314, 317, 329, Figs. 78, 96).

Petitioner’s annotated version of Figure 78 of Conrad ’787 is reproduced below:



Pet. 38. Figure 78 of Conrad ’787, as annotated by Petitioner, shows handle 484 (pink) with a pistol grip configuration, handle axis 888 (purple), and longitudinal axis 884 (red) of cyclonic separating unit 184. *Id.* According to Petitioner, handle 484 of Conrad ’787 “is inclined with respect to the cyclonic separating unit 184 to form an angle θ (green) of not less than 85 degrees and not greater than 140 degrees between a handle axis 888

(purple) and a longitudinal axis 884 (red) of the cyclonic separating unit 184,” and handle axis 888 intersects longitudinal axis 884 “within the vacuum cleaner.” *Id.* at 37–38. Petitioner also explains that Figure 78 illustrates angle 880 and angle 892 and states that angle 880 “may be between 10 and 80 degrees, and preferably between 25 and 65 degrees, more preferably between 35 and 55 degrees or between 20 and 40 degrees,” and angle 892 “is an acute angle of between 10 and 80 degrees, more preferably between 20 and 70 degrees and most preferably between 30 and 60 degrees.” *Id.* at 39 (quoting Ex. 1006 ¶¶ 312, 317). Annotated Figure 78, reproduced above, identifies angle θ (green) as corresponding to the recited “angle . . . between a handle axis and the longitudinal axis of the cyclonic separating unit.” *Id.* at 40. Petitioner explains that “[g]iven Conrad ’787’s disclosure of the ranges of angles 880 and 892,” the relationship between angles 880 and 892 and angle θ teaches that angle θ “falls within the claimed range of 85 degrees to 140 degrees.” *Id.* at 39–40 (citing Ex. 1003 ¶¶ 89–97).

Patent Owner does not dispute at this stage of the proceeding Petitioner’s contentions showing how the combination of Conrad ’630 and Conrad ’787 teaches each limitation of claim 1. *See* Prelim. Resp. Based on Petitioner’s contentions at this stage of the proceeding, as discussed above, Petitioner has sufficiently shown for purposes of institution how the combination of Conrad ’630 and Conrad ’787 teaches each limitation of claim 1.

2. Claims 2–4, 8, and 10

Petitioner contends each of the limitations of dependent claims 2–4, 8, and 10 is taught by the combination of Conrad ’630 and Conrad ’787. Pet. 41–49. Petitioner’s contentions are supported by Mr. Fester. Ex. 1003 ¶¶ 102–119. Patent Owner does not dispute, at this stage of the proceeding,

Petitioner's contentions showing how the combination of Conrad '630 and Conrad '787 teaches each limitation of claims 2–4, 8, and 10. *See* Prelim. Resp. We have reviewed Petitioner's contentions and supporting evidence and find Petitioner has sufficiently shown for purposes of institution how the combination of Conrad '630 and Conrad '787 teaches each limitation of claims 2–4, 8, and 10.

3. Reasons Supporting the Combination of Conrad '630 and Conrad '787

Petitioner contends Conrad '630 provides an express reason for combining its teachings of features of a handheld vacuum with the handle taught by Conrad '787. Pet. 23. Petitioner reasons that a person of ordinary skill in the art “would have been motivated to use a different handle configuration at the rear because of Conrad '630's express disclosure” to move the handle “to other locations and with other designs.” *Id.* (citing Ex. 1004 ¶ 52 (stating that “handle 102 may be provided elsewhere on the vacuum cleaner 100, for example at the rear 110 and may be of any design”)); *see also id.* at 25–26 (arguing that the “explicit statement” in Conrad '630 would have encourage a person of ordinary skill in the art “to use a different design handle at the rear of the vacuum,” as taught by Conrad '787). Petitioner notes that Conrad '787 is by the same inventor as Conrad '630 and teaches “a handvac 112 with a handle of a different design ‘at the rear.’” *Id.* (citing Ex. 1006, Fig. 78).

According to Petitioner, the handle of Conrad '787 is configured to allow operation of the vacuum “in an orientation that does not require an application of torque by the user's hands,” because the center of gravity of the handvac is aligned vertically below the user's hand, thereby providing “a comfortable handle alignment.” *Id.* at 23–24 (citing Ex. 1006 ¶¶ 314,

317. Petitioner also asserts that “both the handheld vacuums of Conrad’630 and Conrad’787 are designed to be used with various attachments.” *Id.* at 24–25 (citing Ex. 1003 ¶¶ 69–77; Ex. 1006 ¶ 331; Ex. 1008 11:50–52, 12:7–12, Figs. 3b, 6–10).

Petitioner reasons that a person of ordinary skill in the art would have been motivated to incorporate the handle taught by Conrad ’787 with the vacuum of Conrad ’630, because, when used with attachments, a handle at the rear, as taught by Conrad ’787, would provide a “user with a better grip and more comfort,” would allow for “easier guiding and steering,” and would allow “the user to push the vacuum cleaner without requiring the application of torque.” Pet. 25–26 (citing Ex. 1003 ¶¶ 64–77, 88–101; Ex. 1006 ¶¶ 314, 316). According to Petitioner, “when Conrad’630 suggests that the handle in its system can be placed at the rear, the most natural solution would be the most common, ubiquitous type of handle placed at the rear of handheld vacuum—the pistol grip handle disclosed in Conrad’787.” *Id.* at 26; *see also id.* at 27 (arguing that a person of ordinary skill in the art would have recognized that the location of the handle in Conrad ’787 would “promote the forward movement of the vacuum cleaner” and “allow for more flexibility in using the handheld vacuum with an attachment”); *Id.* at 27–28 (arguing that person of ordinary skill in the art would have had a reasonable expectation of success because “the improved handle would not interfere with the vacuum’s components”).

In opposition, Patent Owner argues that Petitioner “fails to provide any motivation to make the proposed changes or any rationale to modify Conrad ’630 to include the specific [handle] of Conrad ’787 . . . much less . . . at the claimed location and orientation.” Prelim. Resp. 25. More particularly, Patent Owner first argues that “[t]he vacuum cleaner of

Conrad '630 functions very differently than the handvac of Conrad '787," and asserts that Petitioner provides "no rationale" for why the handle of Conrad '787, which is "positioned for manipulating the handvac/vacuum cleaner to maintain the nozzle axis at an angle to the horizontal surface to be cleaned," has "any relevance to the vacuum cleaner of Conrad '630, which includes a nozzle axis perpendicular to the surface to be cleaned." Patent Owner acknowledges that Petitioner contends the vacuum of Conrad '630 may be used with attachments, but asserts Petitioner's argument is based on an "unsupported assumption" that a user would carry the vacuum in one hand while using an attachment with the other. *Id.* at 28. Patent Owner further argues that Petitioner provides "*no evidence*" that the "allegedly more desirable grip and comfort" of the handle of Conrad '787 "relates to holding the vacuum cleaner in one hand while cleaning with an attachment in the other hand," or "would provide any benefit for passively holding the vacuum cleaner of Conrad '630 while positioning the nozzle on the attachment separately." *Id.* at 28–29.

Patent Owner also argues that Petitioner fails to "explain how the steering and torque advantages would relate to Conrad '630's vacuum when . . . Conrad '630's suction is perpendicular to the surface to be cleaned and Conrad '787's pistol grip is at an angle." *Id.* at 29. According to Patent Owner, "[o]ne of ordinary skill in the art would have expected that the placement and orientation of the handle to prevent contortion of the wrist would be different where the vacuum cleaner is designed to have the longitudinal axis of the vacuum cleaner run parallel to the surface to be cleaned while the suction is perpendicular to the surface to be cleaned." *Id.* We note that Patent owner's assertion of what a person of ordinary skill in the art would have expected is unsupported attorney argument to which we

give little weight. Patent Owner also argues, again with no support, that when “angling the vacuum from the proposed combination to the angle that aligns with how the vacuum” of Conrad ’787 utilizes “the pistol grip as required by the Challenged Claims, the suction opening . . . does not sit against the surface to be cleaned except for in the rare circumstance when the surface to be cleaned is at that exact angle.” *Id.* at 30. We note that the Challenged Claims do not require a pistol grip that is “utilized” in a particular way.

Next Patent Owner argues that “the cited references provide guidance that is particular to the intended use and positioning of the vacuum cleaner of that reference,” and that Petitioner ignored “the overall teachings of the references.” *Id.* at 31. We note that the Challenged Claims, however, are not directed to an “intended use” or “position” of the vacuum. According to Patent Owner, “the modification of Conrad ’630 proposed by Petitioners would break the relationship of the placement and orientation of the handle to longitudinal axis passing through the suction opening that corresponds to the alleged advantages for the [handle] in Conrad ’787.” *Id.* at 31–35. Patent Owner’s argument, however, disregards the express disclosure in Conrad ’630 that the handle may be placed at rear. *See* Ex.1004 ¶ 52 (stating that “handle 102 may be provided elsewhere on the vacuum cleaner 100, for example at the rear 110 and may be of any design”). Patent Owner also does not show how any of the prior art vacuums are limited in their intended use and positioning.

Patent Owner also argues that “the handle in Conrad ’630 prior to any modification is positioned vertically above the approximate center of gravity of the vacuum cleaner of Conrad ’630,” based upon which Patent Owner asserts “Conrad ’787 also teaches away from Petitioners’ alleged

modification of Conrad '630 to include a pistol grip at the rear of the vacuum cleaner.” *Id.* at 37–38 (citing Ex. 1006 ¶ 314). Conrad '787 states as follows:

Typically, handvac 112 is most comfortably operated in an orientation that does not require an application of torque by the user's hands when the handvac 112 is held by handle 484. This may be the case where the center of gravity 524 of the handvac 112 is aligned vertically below the user's hand. Accordingly, the center of gravity 524 may be vertically aligned below handle 484 in comfortable in-use orientations of handvac 112.

Ex. 1006 ¶ 314.

Patent Owner's assertion of the “approximate center of gravity” of the vacuum cleaner of Conrad '630 is unsupported attorney argument to which we give little weight. Additionally, Patent Owner fails to explain how Conrad '787's teaching that the center of gravity “may be” aligned vertically below the user's hand in use,” constitutes a “teaching away.” A reference teaches away from a claimed invention if it “criticizes, discredits, or otherwise discourages” modifying a reference to arrive at the claimed invention. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). The “mere disclosure of alternative designs does not teach away.” *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). Patent Owner's argument appears to presume the vacuum of Conrad '787 is used only in a certain orientation whereby its center of gravity “may” align vertically with a user's hand, and that the vacuum of Conrad '630, with a modification to place the handle in the rear as Petitioner proposes, would also only be used in a certain orientation whereby its center of gravity does not align vertically with a user's hand. Neither of these presumptions is supported on the current record, and we are not persuaded on the current record that Conrad '787 would have discouraged a person of ordinary skill in the art from modifying

the vacuum of Conrad '630, as proposed by Petitioner, particularly when Conrad '630 expressly states that “handle 102 may be provided elsewhere on the vacuum cleaner 100, for example at the rear 110 and may be of any design.” *See* Ex.1004 ¶ 52.

For the reasons explained above in our analysis of claim 1 and based on our review and consideration of Petitioner’s arguments and evidence directed to claims 1–4, 8, and 10, on the preliminary record before us, we find that Petitioner has shown sufficiently that the asserted combination of Conrad '630 and Conrad '787 teaches every limitation of claims 1–4, 8, and 10, and that one of ordinary skill in the art would have had sufficient reason to combine Conrad '630 and Conrad '787 and would have had a reasonable expectation of success in doing so.

4. Determination of a Reasonable Likelihood of Prevailing

“Once all relevant facts are found, the ultimate legal determination [of obviousness] involves the weighing of the fact findings to conclude whether the claimed combination would have been obvious to an ordinary artisan.” *Arctic Cat*, 876 F.3d at 1361. On balance, considering the record presently before us, Petitioner has established a reasonable likelihood that it would prevail in showing that the combination of Conrad '630 and Conrad '787 would have rendered the subject matter of claims 1–4, 8, and 10 of the '687 patent obvious to one of ordinary skill in the art at the time of the invention.

G. Additional Grounds

Petitioner additionally contends that claims 1–4, 8, and 10 would have been obvious over Conrad '630 and Dyson (Pet. 49–60), over Matsumoto and Conrad '787 (*id.* at 60–90), and over Matsumoto and Dyson (*id.* at 90–98). Patent Owner disputes certain of Petitioner’s contentions as to these

additional grounds. *See* Prelim. Resp. 24–48. Because we have determined above that, at this stage of the proceeding and on the present record, the information presented in the Petition and Preliminary Response shows that there is a reasonable likelihood that Petitioner will prevail with respect to at least one claim based on alleged obviousness over Conrad ’630 and Conrad ’787, we need not address, in this Decision, Petitioner’s additional challenges. *See* 35 U.S.C. § 314(a).

We note Patent Owner’s arguments in opposition to the asserted combination of Conrad ’630 and Dyson substantially mirror its arguments addressed above directed to the asserted combination of Conrad ’630 and Conrad ’787. *See* Prelim. Resp. 24–38. For example, Patent Owner argues that Petitioner “fails to provide any motivation . . . or any rationale” for modifying the vacuum of Conrad ’630 based on the teachings of Dyson. *Id.* at 25. Patent Owner also argues that “the modification of Conrad ’630 proposed by Petitioners would break the relationship of the placement and orientation of the handle to longitudinal axis passing through the suction opening that corresponds to the alleged advantages for the [handle] in . . . [Dyson].” *Id.* at 35. We find these arguments not sufficiently supported and not persuasive on the current record for substantially the same reasons addressed above in regard to the asserted combination over Conrad ’630 and Conrad ’787.

With regard to the grounds that rely on Matsumoto, Patent Owner argues that Petitioner fails to show “it would have been obvious to modify Matsumoto into a handheld vacuum cleaner” or “that it would have been obvious to substitute the handle of either Conrad ’787 or [Dyson] for the handle of Matsumoto.” *Id.* at 38. Patent Owner argues that Petitioner acknowledges that Matsumoto does not teach a handheld vacuum. *Id.* at 39.

Petitioner, however, expressly asserts in the Petition that “Matsumoto discloses a handheld stick-type vacuum cleaner.” Pet. 64. Patent Owner, at this stage of the proceeding, has not argued an express construction of “handheld” that would exclude Matsumoto. Matsumoto describes a vacuum with a “handle . . . to be held by the user.” Ex. 1005 ¶ 26. Patent Owner may further address how it proposes “handheld” should be expressly construed to the extent Patent Owner argues the vacuum of Matsumoto is not “handheld” within the meaning of the Challenged Claims. Patent Owner also argues that applying the teaching of a pistol grip handle to Matsumoto would increase the size of the handle and that Petitioner fails to identify “any issue” with Matsumoto’s handle. *Id.* at 44. On the current record, Patent Owner’s arguments are not supported and do not persuasively refute Petitioner’s rationale for the asserted combination. Patent Owner’s remaining arguments warrant further consideration based on the development of a complete record during trial. *See, e.g.*, at 45–48.

IV. CONCLUSION

For the foregoing reasons, we determine that Petitioner demonstrates a reasonable likelihood of prevailing with respect to at least one of the Challenged Claims in the Petition. Accordingly, *inter partes* review of the ’687 patent shall proceed in this case on all of the grounds raised in the Petition. *See SAS Inst.*, 138 S. Ct. at 1359–60 (holding that a decision to institute under 35 U.S.C. § 314 may not institute on fewer than all claims challenged in the petition); *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (stating that the decision whether to institute *inter partes* review requires “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”).

Our determination in this Decision is not a final determination on either the patentability of any challenged claims or the construction of any claim term. The factual findings set forth in this Decision are preliminary and provided for the sole purpose of deciding whether to institute a review. Any final findings will be based on the full trial record, including any information presented by Patent Owner in a timely filed response to the Petition. *See Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (noting that “there is a significant difference between a petitioner’s burden to establish a ‘reasonable likelihood of success’ at institution, and actually proving invalidity by a preponderance of the evidence at trial”) (quoting 35 U.S.C. § 314(a) and comparing *id.* with § 316(e)).

V. ORDER

Upon consideration of the record before us, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–4, 8, and 10 of U.S. Patent No. 10,433,687 B2 is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of U.S. Patent No. 10,433,687 B2 shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

IPR2023-01322
Patent 10,433,687 B2

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