

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,
Petitioners,

v.

DYSON TECHNOLOGY LIMITED
Patent Owner.

Case No. IPR2023-01322

U.S. Patent No. 10,433,687

**PATENT OWNER'S PRELIMINARY RESPONSE
PURSUANT TO 37 C.F.R. § 42.017**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	CLAIM CONSTRUCTION	3
III.	TECHNICAL BACKGROUND	4
A.	Summary of '687 Patent.....	4
B.	Summary of Asserted Prior Art.....	6
1.	U.S. Patent Publication No. 2011/0314630 (“Conrad ’630”)	7
2.	U.S. Patent Publication No. 2016/0174787 (“Conrad ’787”)	8
3.	Int’l Publication NO. WO 2008/009888 (“WO ’888”)	10
4.	EP Publication No. 1,199,023 (“Matsumoto”)	12
C.	Prosecution and Related History	14
IV.	SPECIFIC GROUNDS OF ALLEGED UNPATENTABILITY	18
A.	The Board should utilize its discretion under 35 U.S.C. § 325(d) to deny institution because substantially the same prior art was presented to the Office during prosecution of the ’687 Patent	19
1.	The Petition includes the same or substantially the same art previously presented to the Office and the same or substantially the same arguments previously presented to the Office.....	21
2.	Petitioners have not demonstrated that the Office erred in a manner material to the patentability of challenged claims	23
B.	GROUND 1 and 2: Petitioners fail to show that Conrad ’630 in combination with either Conrad ’787 or WO ’888 would have rendered obvious the Challenged Claims	24

1.	Petitioners do not provide sufficient evidence to support modifying Conrad '630 to include the pistol grip handles of Conrad '787 or WO '888.....	25
2.	Petitioners' proposed modification of Conrad '630 to include the pistol grip handles of Conrad '787 or WO '888 goes against teachings in Conrad '787 and WO '888	31
C.	GROUND 3 and 4: Petitioners fail to show that Matsumoto in combination with either Conrad '787 or WO '888 would have rendered obvious the Challenged Claims.....	38
1.	Petitioners fail to show that it would have been obvious to modify Matsumoto into a handheld vacuum cleaner as required by the Challenged Claims.....	39
2.	Petitioners fail to show that it would have been obvious to substitute the handle of either Conrad '787 or WO '888 for the handle of Matsumoto and orient it as claimed in the Challenged Claims	43
V.	CONCLUSION.....	48

TABLE OF AUTHORITIES

Cases	Page(s)
<i>Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH</i> , IPR2019-01469, Paper 6 (Feb. 13, 2020)	20, 21
<i>Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.</i> , 800 F.3d 1375 (Fed. Cir. 2015)	1
<i>Harmonic Inc. v. Avid Tech., Inc.</i> , 815 F.3d 1356 (Fed. Cir. 2016)	1
<i>Juniper Networks, Inc. v. Mobile Telecommunications Technologies</i> , <i>LLC</i> , IPR2017-00642 (Mar. 14, 2018)	24
<i>Polaris Indus., Inc. v. Arctic Cat, Inc.</i> , 882 F.3d 1056 (Fed. Cir. 2018)	43
Statutes, Rules & Regulations	
35 U.S.C. § 312(a)(3).....	1
35 U.S.C. § 314(a)	1
35 U.S.C. § 325(d)	<i>passim</i>

PATENT OWNER'S EXHIBIT LIST

Exhibit	Description
2001	U.S. Patent Publication No. 2017/0071426 A1 (“Krebs”)
2002	GB 2440111B
2003	Chinese Patent Application No. 201610830364.1
2004	Chinese patent document no. CN1178622C
2005	China National Intellectual Property Administration, Case No. 4W114231 (Oct. 19, 2022) original
2006	China National Intellectual Property Administration, Case No. 4W114231 (Oct. 19, 2022) translation
2007	The People’s Republic of China Beijing Intellectual Property Court Administrative Judgment (Oct. 25, 2023) original
2008	The People’s Republic of China Beijing Intellectual Property Court Administrative Judgment (Oct. 25, 2023) translation
2009	U.S. Patent Application Publication 2016/0150923 A1 (“Conrad ’923”)
2010	U.S. Patent No. 8,156,609
2011	Chinese patent document no. CN101489454A
2012	Chinese patent document no. CN1361673A
2013	China National Intellectual Property Administration, Case No. 4W114082 (Sept. 23, 2022) original
2014	China National Intellectual Property Administration, Case No. 4W114082 (Sept. 23, 2022) translation
2015	U.S. Patent No. 1,871,624 (“the ’624 patent”)

I. INTRODUCTION

Patent Owner Dyson Technology Limited (“Patent Owner”) provides the following preliminary response to the Petition filed by SharkNinja, Inc., SharkNinja Operating LLC, SharkNinja Management LLC, and SharkNinja Sales Company (collectively, “Petitioners”) requesting *inter partes* review of claims 1-4, 8, and 10 (“the Challenged Claims”) of U.S. Patent No. 10,433,687 (“the ’687 Patent”). For at least the reasons set forth below, Patent Owner requests that the Board deny *inter partes* review as to the Petition.

Institution of an *inter partes* review requires that “the information presented in the petition filed under section 311 and any response filed under section 313 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). “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)). This burden of persuasion never shifts to the patent owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing burden of proof in *inter partes* review).

Petitioners fail to meet that burden here. As an initial matter, the Board should exercise its discretion under 35 U.S.C. § 325(d) to deny institution because

Petitioners merely present references and arguments that are either similar to or, in many cases, further from the claimed invention than the prior art that was already considered by the Office during prosecution. For example, the handle, suction port, and cyclone arrangement in Conrad '630 is arranged in a similar manner to U.S. Patent Publication No. 2017/0071426 A1 ("Krebs," EX-2001), which was prior art cited in a rejection that was overcome during prosecution of the '687 Patent because of deficiencies also apparent in Conrad '630. Pet. at 11-13. Further, Conrad '787 was cited in a rejection that was overcome, and WO '888¹ has similar drawings and includes the same deficiencies as GB 2440111B (EX-2002) discussed in the Background of the Invention section of the '687 Patent. EX-1001 at 1:16-34. Thus, Petitioners fail to provide superior art than what was presented by the Examiner and overcome during prosecution. Instead, Petitioners merely provide similar references in a slightly new package and the Board should not use its scarce resources to re-tread ground that has already been sufficiently traversed by the Office during prosecution.

Further, the Petition is also deficient on substantive grounds. Petitioners assert Conrad '630 as a main reference even though they recognize that it lacks the claimed pistol grip. Petitioners then assert that a person of ordinary skill in the art would have modified Conrad '630 to include a pistol grip oriented at the back of

¹ WO 2008/009888 ("WO '888") is referred to in the Petition as "Dyson."

the handheld vacuum cleaner without regard for the teachings of the references on which Petitioners rely that indicate that such orientation would be discouraged given the placement of the suction and the center of gravity in Conrad '630.

Petitioners also assert Matsumoto, an upright vacuum cleaner, as a main reference. However, Petitioners inadequately demonstrate why one of ordinary skill in the art would have modified Matsumoto into a handheld vacuum cleaner, relying exclusively on an out-of-context use of the term “miniaturization” in Matsumoto and a hypothetical, unsupported modification of Matsumoto created by Petitioners’ expert. Further, similar to the Conrad '630 grounds, Petitioners have not provided sufficient rationale for modifying Matsumoto to include the pistol grip handle in view of the teachings of the references on which Petitioners rely.

For at least the reasons set forth in more detail below, Petitioners have not shown a reasonable likelihood that at least one of the Challenged Claims is unpatentable, and the Petition should be denied.

II. CLAIM CONSTRUCTION

For the purposes of this Preliminary Response only, Patent Owner agrees with Petitioners that construction of any claim term is not necessary for the Board to deny the Petition, Pet. at 5, and Patent Owner does not contest Petitioners’ definition of a person of ordinary skill in the art, *id.* at 15-16. Patent Owner reserves the right to contest the construction of claim terms and Patent Owner’s

definition of a person of ordinary skill in the art at any other point in this proceeding or in any other proceeding involving the '687 Patent or any patents regarding a related technology.

III. TECHNICAL BACKGROUND

A. Summary of '687 Patent

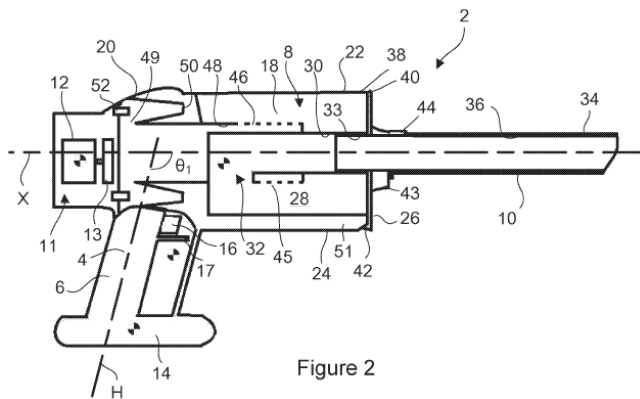
The '687 Patent is directed to “a handheld vacuum cleaner comprising a cyclonic separating unit.” EX-1001 at 1:11-12. The '687 Patent notes that GB 2440111B (EX-2002) also discloses “a handheld vacuum cleaner” with a “cyclonic separator” that includes “a collector for collecting dirt” that “has a base that is pivotally mounted to an outer wall of the collector and held in a closed position by a catch [that] swing[s] open so that the collector can be emptied.” *Id.* at 1:16-25. “In order to empty the collector, a user positions the base over a waste bin and then releases the catch [so that] [t]he base swings open and dirt which has been collected falls from the collector into the waste bin.” EX-1001 at 1:26-29. The '687 Patent recognizes that while this arrangement is simple, it has drawbacks in that “it is slightly awkward because the user typically has to twist his or her hand to one side or upwardly in order to direct the dirt away from themselves into the waste bin.” *Id.* at 1:29-33. The '687 Patent recognizes that “[a]n “improved arrangement is therefore desirable.” *Id.* at 1:33-34.

To that end, the '687 Patent discloses a handheld vacuum cleaner with both a “cyclonic separating unit comprising an end portion having a closed configuration in which dirt is retained within the dirt collector by the end portion and an open configuration for the removal of dirt from the dirt collector,” as well as a handle that “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 the handle and the longitudinal axis of the cyclonic separating unit.” *Id.* at 1:38-51. This is an improvement over the prior art because the disclosed handheld vacuum cleaner “can be emptied by pointing the cyclonic separating unit away from the user and opening the end portion while maintaining a natural grip on the handle” making “[t]he process of emptying the dirt collector . . . both ergonomic and intuitive” and providing “a low risk of the user coming into contact with the dirt as it is emptied because the dirt collector opens away from user.” *Id.* at 1:52-59. Specifically, the '687 Patent discloses:

Referring to FIG. 8, in order to empty the dirt collector 38 and the fine dust collector 51 of either of the described embodiments, the user first disconnects the cleaning tool 10 or the wand 110. Then, whilst gripping the handle 6, the user points the vacuum cleaner 2 towards a suitable receptacle (e.g. a waste bin or bag) into which the dirt is to be emptied. The catch 42 is then released by the user and the end wall 26 pivoted from its closed position into its open position. Since the cyclonic separating unit 8 is pointed away from the user, there is no need for the user to adopt a different grip or posture from that which is adopted during normal cleaning. Consequently, the process by which the dirt collector 38 and the fine dust collector 51 are emptied is very intuitive and ergonomic. Furthermore, dirt exits the dirt collector 38/fine dust

collector 51 from the end of the cyclonic separating unit 8 which is furthest from the handle 6. Therefore, there is less risk that dirt will spill from the dirt collector 38/fine dust collector 51 onto a user during emptying.

Id. at 5:61-6:11.



EX-1001 Fig. 2

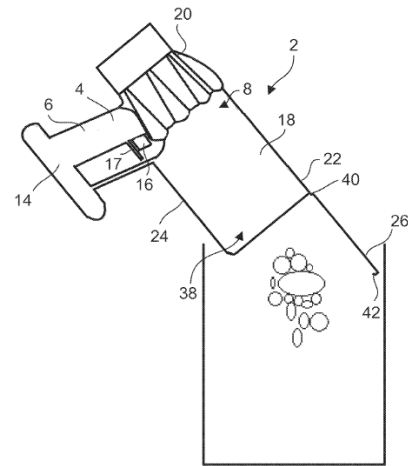


Figure 8
EX-1001 Fig. 8

B. Summary of Asserted Prior Art

Petitioners assert that the Challenged Claims of the '687 Patent that are directed to a handheld vacuum cleaner with an improved arrangement for emptying a dirt collector are unpatentable based on four grounds:

- GROUND 1: Obviousness over Conrad '630 and Conrad '787;
- GROUND 2: Obviousness over Conrad '630 and WO '888;
- GROUND 3: Obviousness over Matsumoto and Conrad '787; and
- GROUND 4: Obviousness over Matsumoto and WO '888.

Pet. at 3-4. The Board should use its discretion to deny institution pursuant to 35 U.S.C. § 325(d) because the Petition relies upon either references that were

considered by the Patent Office or references almost identical to references that were considered by the Patent Office during prosecution. Thus, trial should not be instituted. Even if the Board does not exercise its discretion, these grounds are deficient and Petitioners have not shown a reasonable likelihood of succeeding on any of these grounds as to any of the Challenged Claims.

1. U.S. Patent Publication No. 2011/0314630 (“Conrad ’630”)

Conrad ’630 discloses a hand vacuum cleaner having a removable dirt chamber. EX-1004 ¶ [0001].

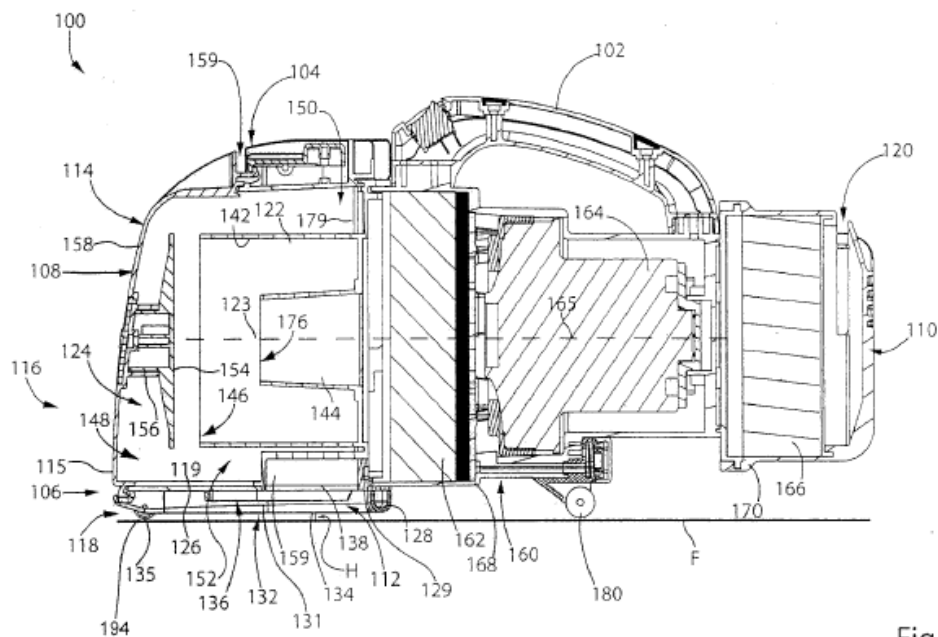


Fig. 6

EX-1004 Fig. 6

Dirt from the surface to be cleaned is drawn into the vacuum cleaner through “[n]ozzle 112 [that] engages a surface to be cleaned, and comprises a dirty air inlet 118.” *Id.* ¶ [0054]. The “nozzle 112 is positioned at the bottom of the vacuum cleaner 100, and, preferably, beneath the cyclone unit 114 [and] may be integral

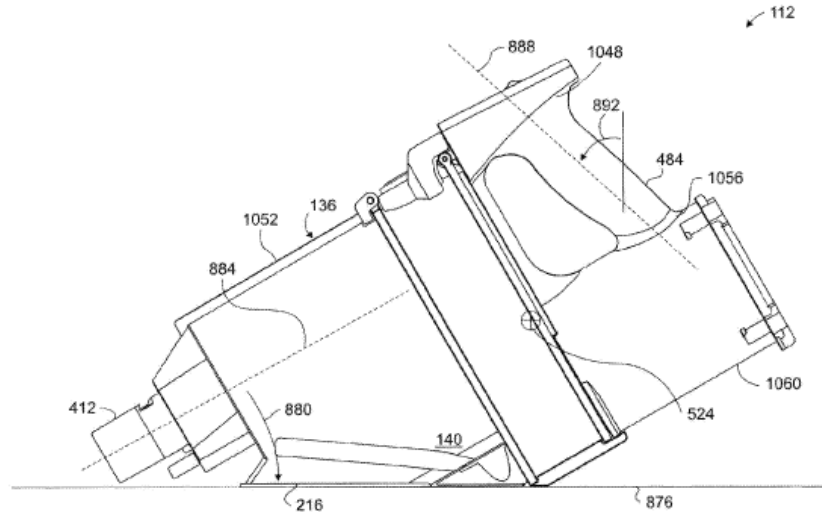
formed as [part] of cyclone unit 114 or may be a one-piece assembly therewith.”

Id. ¶ [0056]. The vacuum cleaner is designed to be “moveable along a surface to be cleaned by gripping and maneuvering handle 102,” and optionally includes both front wheels 135 and rear wheels 180 located on the bottom in contact with the surface to be cleaned and opposite the handle position. *Id.* ¶¶ [0052], [0067].

Although Conrad ’630 mentions alternate examples in which “handle 102 may be provided elsewhere on the vacuum cleaner 100, for example at the rear 110 and may be of any design,” this statement immediately follows the statement that the vacuum cleaner is “moveable along a surface to be cleaned by gripping and maneuvering handle 102.” *Id.* ¶ [0052]. Accordingly, any placement or design of the handle would be expected to be arranged for moving the bottom of the vacuum cleaner along the surface to be cleaned.

2. U.S. Patent Publication No. 2016/0174787 (“Conrad ’787”)

Conrad ’787 discloses a “stick vacuum cleaner wherein a hand vacuum cleaner is removably mounted to a drive handle.” EX-1006 ¶ [0002]. A handvac is illustrated and described in one of the embodiments. *Id.* ¶ [0311], Fig. 78.



EX-1006 Fig. 78

A key feature of the handvac described in Fig. 78 is “a flat bottom wall, for supporting the handvac on a horizontal surface, and which extends at an acute angle (e.g., between 20 and 40 degrees) away from the inlet nozzle axis, and optionally at about the in-use orientation.” *Id.* ¶ [0311]. The “handvac center of gravity 524 is preferably aligned vertically above bottom wall 216 when handvac 112 is supported on horizontal surface 876 by bottom wall 216.” *Id.* ¶ [0313].

Conrad '787 discloses “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.” *Id.* ¶ [0314]. “This may be the case where the center of gravity 524 of the handvac 112 is aligned vertically below the user’s hand.” *Id.*

“Accordingly, the center of gravity 524 may be vertically aligned below handle 484 in comfortable in-use orientation of handvac 112.” *Id.*

Conrad '787 describes factors for aligning the handle axis 888 with respect to the vertical axis. As the resting orientation and in-use orientation of the handvac 112 is substantially the same, “when a user grasps handvac 112 by handle 484 and lifts handvac 112, handvac 112 may already be in a balanced in-use position with the center of gravity 524 aligned below the user’s hands.” *Id.* ¶ [0315]. Figure 78 (reproduced above) includes “handle axis 888 of handle 484 extend[ing] at a (non-zero) forward angle 892 to the vertical . . . [which] may provide a comfortable handle alignment for grasping by a user when picking up handvac 112, and when using handvac 112 for cleaning surfaces below the user’s elbows.” *Id.* ¶ [0317]. Accordingly, Conrad '787 describes the handle positioning and alignment being optimized based on the center of gravity and alignment of the handvac when picking up the handvac and in use.

3. Int’l Publication NO. WO 2008/009888 (“WO ’888”)

WO ’888 discloses 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.” EX-1007 at 2:6-8. The object of a hand-held vacuum cleaner that can be manipulated easily and comfortably is an improvement over the prior art discussed in WO ’888, such as U.S. Patent No. 1,871,624 (“the ’624 patent,” EX-2015), which “discloses a hand-held vacuum cleaner having a cylindrical main body and a handgrip arranged at an

one end . . . [, wherein t]he handgrip is arranged transversely to the longitudinal axis of the cylindrical main body and approximately parallel to the suction conduit.” EX-1007 at 1:19-23. WO ’888 explains that the handle positioning in the ’624 patent results in the heavy components all being forward of the handgrip, causing the center of mass to be located substantially forward of the handgrip. *Id.* at 1:25-29. WO ’888 recognizes that this handle position so far back from the center of gravity “may result in the hand-held vacuum cleaner . . . being tiring and uncomfortable to use because the user will have to exert additional effort in order to maintain the hand-held vacuum cleaner in a fixed orientation.” *Id.* at 1:29-2:2.

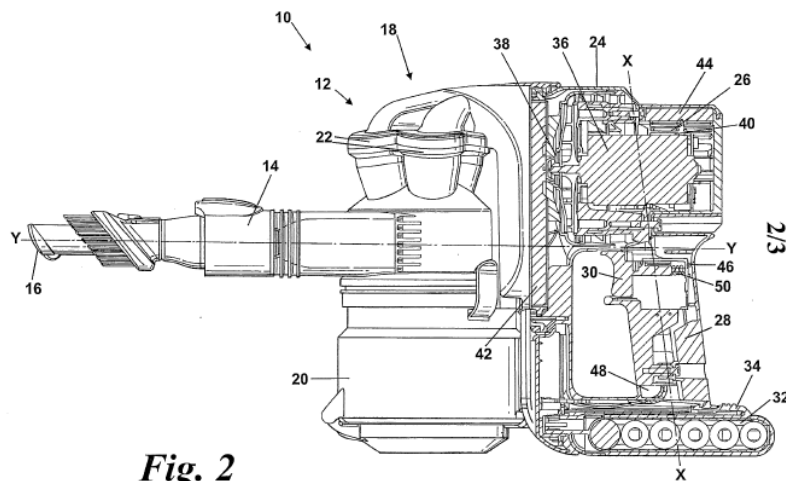


Fig. 2
EX-1007 Fig. 2

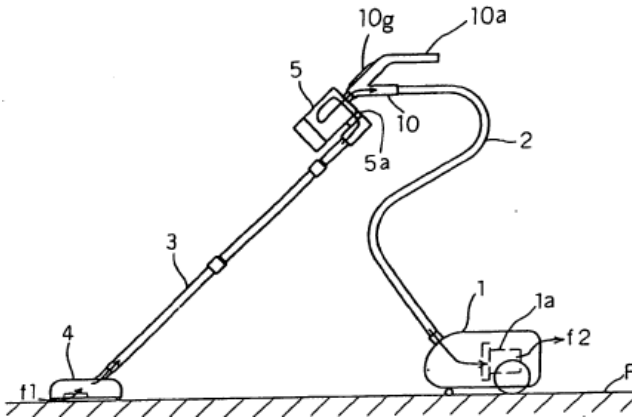
In WO ’888, the “separating apparatus [18] is located between the suction conduit [14] and the elongate handle [28],” which “improves the weight balance of the hand-held vacuum cleaner.” *Id.* at 2:25-27. The handle in WO ’888 is “disposed between the airflow generator [36] and the power source [32] and

dimensioned and arranged to be gripped by a user's hand, wherein the elongate handle [28] lies transverse to the longitudinal axis [Y-Y] of the suction conduit," which allows a user "to maintain a comfortable wrist position and movement of the hand-held vacuum cleaner feels comfortable." *Id.* at 2:14-19. Accordingly, WO '888 describes the handle positioning and alignment being optimized in relation to the center of gravity of the vacuum cleaner and alignment with respect to the longitudinal axis of the suction conduit.

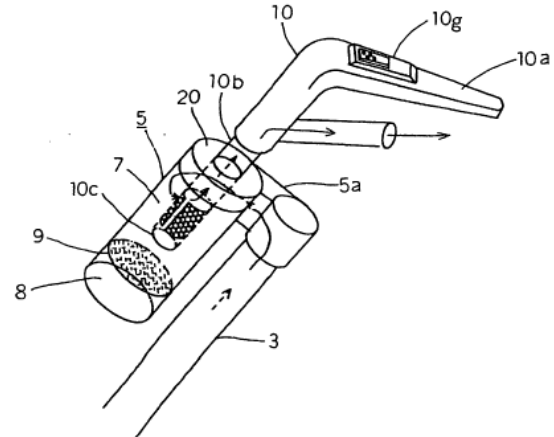
4. EP Publication No. 1,199,023 ("Matsumoto")²

Matsumoto discloses "a vacuum cleaner having a cyclone dust collecting part that separates dust and dirt by forming suction air into a whirling stream." EX-1005 ¶ [0001]. Matsumoto does not disclose a handheld vacuum cleaner. Instead, Matsumoto generally discloses an upright vacuum cleaner in multiple embodiments.

² EX-1005 submitted by Petitioners is EP Publication No. 1,199,023 B1 and has a publication date of March 17, 2010, not April 24, 2004, as asserted by Petitioners. *See* Pet. at 4.



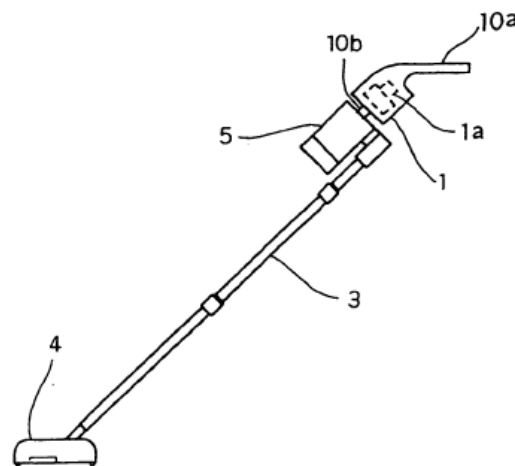
EX-1005 Fig. 1



EX-1005 Fig. 2

Matsumoto further discloses that the dust collection chamber, as illustrated in Figure 2 above, is emptied by “detach[ing] the first and second dust collecting chambers 7 and 8 integrally from the vacuum cleaner, and then separate[ing] the first and second dust collecting chambers 7 and 8 from each other above a trash can or the like.” *Id.* ¶ [0046].

Matsumoto also discloses a fifth embodiment, illustrated in Figure 25, whereby “[t]he handle 10a held by the user during cleaning is formed integrally with the body 1.” *Id.* ¶ [0060].



EX-1005 Fig. 25

Additionally, Matsumoto discloses that “a connection pipe is bent so as to function as a handle held by the user during cl[eaning to] reduce the space occupied by the handle [and] miniaturize a vacuum cleaner and enhance the operability thereof.” *Id.* ¶ [0068].

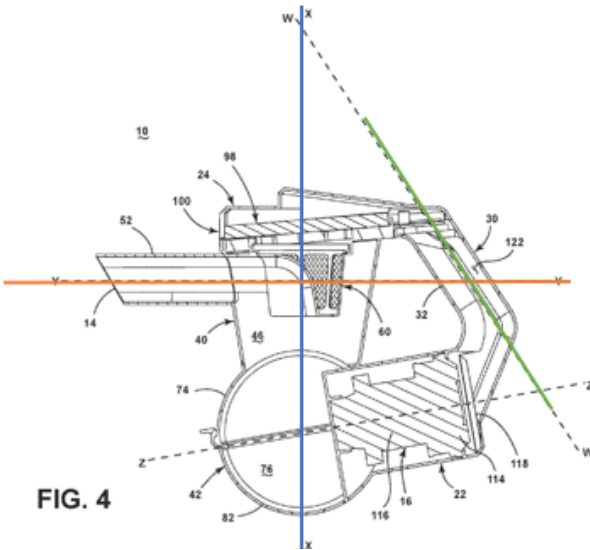
C. Prosecution and Related History

Each of the aforementioned references have either been considered during prosecution of the '687 Patent or related prosecutions or is similar to and shares deficiencies with references that were considered during prosecution and traversed.

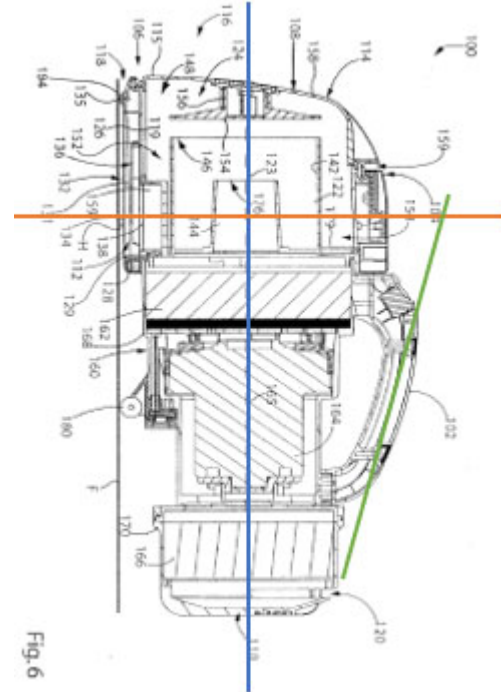
As Petitioners acknowledge, while Conrad '630 was not considered during prosecution of the '687 Patent, a continuation of Conrad '630—U.S. Patent Application Publication 2016/0150923 A1 (“Conrad '923,” EX-2009)—was considered and is cited on the face of the '687 Patent. Pet. at 4. Because Conrad '923 is a continuation of Conrad '630, they share the same disclosure. EX-2009 ¶ [0001].

Further, as Petitioners note, the Examiner cited U.S. Patent Application Publication No. 2017/0071426 to Krebs et al. (“Krebs,” EX-2001) as an anticipatory reference in the First Office Action issued for the '687 Patent. Pet. at 11-13 (citing EX-1002 at 257-269). Krebs and Conrad '630 share important similarities. Specifically, Krebs discloses the placement and orientation of the

suction opening, cyclonic separating unit, and handle that generally aligns with the disclosure in Conrad '630:



EX-2001 (Krebs)
Fig. 4 (annotated)



EX-1004 (Conrad '630)
Fig. 6 (annotated)

In the annotated figures above, the blue line is the longitudinal axis of the separator, the orange line is the longitudinal axis passing through the suction opening, and the green line is the handle axis. As shown above, the placement and orientation of the separator, suction opening, and handle are similar between the two vacuum cleaners with the exception being the handle axes are angled in opposite directions with respect to the longitudinal axis of the separator. Accordingly, 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.

Petitioners also acknowledge that Conrad '787 was considered by the Examiner and applied in an Office Action during prosecution of the '687 Patent. Pet. at 5. Petitioners state that the Examiner never considered Conrad '787 in combination with either Conrad '630 or Matsumoto. *Id.* However, the Examiner explicitly considered Krebs, which has a similar arrangement to Conrad '630, and the Examiner considered Conrad '923, which has an identical disclosure to Conrad '630. Although the Examiner did not assert a rejection based on either Krebs or Conrad '923 in view of Conrad '787, all three references were considered when determining that the claims were allowable.

Although WO '888 was not of record during prosecution of the '687 Patent, related publications with similar disclosure and drawings were considered during prosecution of the '687 Patent. For example, GB 2440111B (EX-2002) was considered by the Examiner as evidenced by the front page of the '687 Patent and is the sole reference discussed in the Background of the Invention section of the '687 Patent. EX-1001 at 1:16-25. GB 2440111B includes similar figures to WO '888:

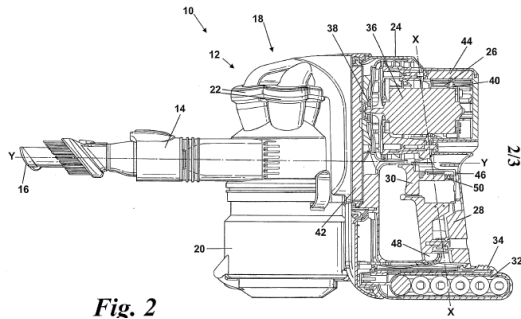


Fig. 2

EX-1007 Fig. 2

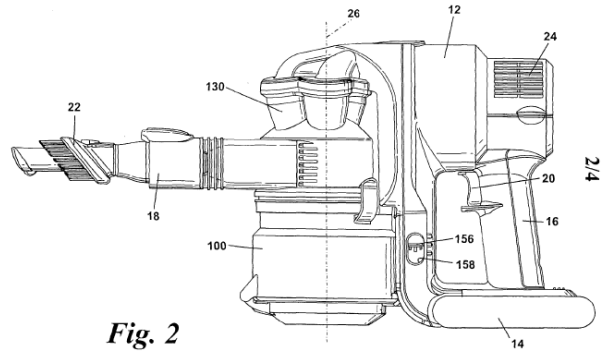


Fig. 2

EX-2002 Fig. 2

Further, GB 2440111B discusses similar handle placement as WO '888. *Compare* EX-1007 at 2:14-19, 2:25-27 *with* EX-2002 at 3:25-31. Further, U.S. Patent No. 8,156,609 (EX-2010), which is a family member of GB 2440111B and includes a similar disclosure to both WO '888 and GB 2440111B, was cited by the Examiner with the First Office Action. EX-1002 at 278. Finally, WO '888 is discussed in the introduction section of Conrad '923, EX-2009 ¶ [0004], which, as discussed above, was considered by the Examiner during prosecution of the '687 Patent.

Finally, Chinese counterparts of each of WO '888 and Matsumoto have been considered in various invalidation proceedings in China related to Chinese Patent Application No. 201610830364.1 (EX-2003), a Chinese counterpart of the '687 Patent, and neither was found to be invalidating prior art. In proceedings initiated by Jingjin Zhang, both the China National Intellectual Property Administration and the People's Republic of China Beijing Intellectual Property Court considered a Chinese counterpart of Matsumoto, Chinese patent document no. CN1178622C (EX-2004), and a Chinese counterpart of WO '888, Chinese patent document no.

CN101489454A (EX-2011), and found that they are not invalidating prior art. EX-2005 (original); EX-2006 (translation); EX-2007³ (original); EX-2008 (translation). In proceedings initiated by Na Li, the China National Intellectual Property Administration considered a further Chinese counterpart of Matsumoto, Chinese patent document no. CN1361673A (EX-2012), and found that it is not invalidating prior art.⁴ EX-2013 (original); EX-2014 (translation).

IV. SPECIFIC GROUNDS OF ALLEGED UNPATENTABILITY

In light of the fact that the Petition merely presents art and arguments that are the same as or similar to the art and arguments that were already before the Office during prosecution of the '687 Patent, the Board should exercise its discretion under § 325(d) and deny institution on that basis alone. However, even if the Board does not exercise its discretion, the Petition also fails substantively.

³ There is a typographical error in the decision of the People's Republic of China Beijing Intellectual Property Court regarding the Chinese patent document number of Exhibit 3, which is the Chinese counterpart of WO '888 as evidenced by Exhibit 3 identified in the decision of the China National Intellectual Property Administration (EX-2005/2006).

⁴ An appeal of this decision to the People's Republic of China Beijing Intellectual Property Court is pending.

Petitioners have failed to demonstrate that trial is warranted because Petitioners do not meet their burden of showing that any of the Challenged Claims is unpatentable under any of the grounds. Ground 1 and 2 fail because Petitioners do not show why one of ordinary skill in the art would have been motivated to replace the handle of Conrad '630 with the pistol grip handle of either Conrad '787 or WO '888 in view of the different orientation of the handle to the suction port between Conrad '630 and Conrad '787 or WO '888 and the specific teachings in Conrad '787 and WO '888 related to center of gravity considerations. Grounds 3 and 4 fail because Petitioners have not shown that Matsumoto discloses or rendered obvious the claimed "handheld vacuum." Additionally, Petitioners have not shown that one of ordinary skill in the art would have been motivated to replace the handle of Matsumoto with the pistol grip of either Conrad '787 or WO '888 in light of statements in Matsumoto teaching away from such a substitution and the differences in the configuration of Matsumoto and Conrad '787 or WO '888. Thus, Petitioners have not established a likelihood of success as to any of the Challenged Claims and the Petition should be denied.

A. The Board should utilize its discretion under 35 U.S.C. § 325(d) to deny institution because substantially the same prior art was presented to the Office during prosecution of the '687 Patent

The Board may deny institution if "the same or substantially the same prior art or arguments previously were presented to the Office." 35 U.S.C. § 325(d).

This is the case here. Under § 325(d), previously presented art includes art made of record by the examiner and art provided to the Office by an applicant in the prosecution history of the challenged patent. *See Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 (Feb. 13, 2020) (precedential). In order to determine whether to exercise its discretion, the Board utilizes a two-part framework: (1) 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, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *Id.*

The Board has recognized that the *Becton, Dickinson* factors are useful in applying the framework above. *Id.* The *Becton, Dickinson* factors include: (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 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; (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. *Id.* These factors support the Board utilizing its discretion in denying institution in this proceeding.

1. The Petition includes the same or substantially the same art previously presented to the Office and the same or substantially the same arguments previously presented to the Office

Becton, Dickinson factors (a), (b), and (d) are all satisfied here because the Petition merely utilizes references that were already presented or are similar to those already presented to the Office in making the same or similar arguments as were presented to the Office.

As mentioned above, although Conrad '630 was not explicitly considered by the Examiner, Conrad '923, a continuation of Conrad '630, was considered by the Examiner and includes the same disclosure. EX-2009 ¶ [0001].

Further, Krebs, which, as discussed above, shares important similarities and disclosures with Conrad '630 was used as an anticipatory reference in the First Office Action and was overcome once the claims were amended. As described above in detail, Krebs discloses the placement and orientation of the suction opening, cyclonic separating unit, and handle that generally aligns with what is disclosed in Conrad '630, and 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.

During prosecution, the anticipation rejection based on Krebs was not maintained after Claim 1 was amended to include the “wherein the handle axis and the longitudinal axis intersect within the vacuum cleaner” limitation. EX-1002 at 195-200. Instead, the Examiner rejected the claims based on Conrad ’787, which is also asserted in the Petition. *Id.* at 184-192. The rejection based on Conrad ’787 was not maintained after Claim 1 was amended to include “at least part of the end portion moves across the longitudinal axis when the end portion moves from the closed configuration to the open configuration.”⁵ *Id.* at 168-177. Although Krebs, having the same deficiencies as Conrad ’630, and Conrad ’787 were explicitly considered by the Examiner as they were both bases for separate rejections, the Examiner chose not to combine the references to form an obviousness rejection based on a combination of Krebs and Conrad ’787 following amendment of the claims.

Finally, although WO ’888 was not of record, at least two references having similar disclosures to WO ’888 were considered by the Examiner. Namely, GB 2440111B (EX-2002) is the sole reference discussed in the Background of the Invention section of the ’687 Patent, EX-1001 at 1:16-25, and U.S. 8,156,609 (family member of WO ’888; EX-2010) was explicitly cited by the Examiner with

⁵ The final claim language was provided by an Examiner’s Amendment.

the First Office Action, EX-1002 at 278. As explained above, all three references illustrate the same device in their figures. *Compare* EX-1007 Fig. 2 *with* EX-2002 Fig. 2 *with* EX-2010 Fig. 2. Further, all three references specify the importance of locating the cyclonic separator between the handle and dirty air inlet, a handle axis or extension that is substantially transverse to the dirty inlet axis, and the advantages for those handheld vacuum cleaners of the pistol grip. *See, e.g.*, EX-1007 at 2:14-27; EX-2002 at 3:19-31; EX-2010 at 2:39-56. Therefore, the Examiner was aware of the subject matter in the disclosure of WO '888 during prosecution.

Thus, Petitioners are now asking the Board to determine the Challenged Claims are unpatentable based on a combination of references that are substantially similar to the references that were extensively evaluated during examination and repeating arguments that were already considered by the Office.

2. Petitioners have not demonstrated that the Office erred in a manner material to the patentability of challenged claims

Rather than provide any explanation for how the Examiner erred in evaluating the asserted prior art, Petitioners have merely stated that Conrad '630 was not considered because Conrad '923, the family member, was not utilized in a rejection and that WO '888 was not considered by the Examiner (without any acknowledgement that very similar disclosures were considered). Pet. at 4-5. Even with regard to Conrad '787, which was clearly considered and asserted in a

rejection by the Examiner, Petitioners merely allege that Conrad '787 was not considered in view of Conrad '630 (without any acknowledgement that very similar disclosures were considered). *Id.*

Where substantially identical references were previously before the Examiner, it is the petitioner who bears the burden of showing how the examiner erred in his or her consideration of that reference. *See Juniper Networks, Inc. v. Mobile Telecommunications Technologies, LLC*, IPR2017-00642, at 9-10 (Paper 31) (Mar. 14, 2018). Petitioners here have made no attempt to carry that burden. There is little to no acknowledgement that the asserted references and similar issues were previously before the Examiner, much less a showing sufficient to meet their burden that the Examiner erred in considering those references. This is a sufficient basis to deny institution of the Petition. The Board need not expend its scarce time and resources to reconsider the same or similar arguments and art that were reviewed during examination of the '687 Patent.

B. GROUNDS 1 and 2: Petitioners fail to show that Conrad '630 in combination with either Conrad '787 or WO '888 would have rendered obvious the Challenged Claims

The Petition acknowledges that Conrad '630 fails to disclose “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 hand axis and the longitudinal axis intersect within the vacuum cleaner,” as required by the Challenged Claims. Pet. at 37, 56. Specifically, the Petition argues that Conrad ’630 discloses that handle 102 is mounted on an upper portion of vacuum cleaner, and 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.* at 37, 56. The Petition then argues that it would have been obvious to substitute the handles of Conrad ’787 or WO’888 for the handle of Conrad ’630 and to place and orient the substituted handle in a manner that would meet the claimed pistol grip limitations above. *Id.* at 37-41, 56-59; *see also* EX-1003 ¶¶ 75-76 (mockups of Conrad ’630 with the handle of Conrad ’787), 130-131 (mockups of Conrad ’630 with the handle of WO ’888). However, the Petition fails to provide any motivation to make the proposed changes or any rationale to modify Conrad ’630 to include the specific handles of Conrad ’787 or WO’888, much less the specific handles at the claimed location and orientation.

1. Petitioners do not provide sufficient evidence to support modifying Conrad ’630 to include the pistol grip handles of Conrad ’787 or WO ’888

As to Ground 1, Petitioners argue that Conrad ’787 provides motivation to substitute the pistol grip in Conrad ’787 for the handle in Conrad ’630. Pet. at 23-28. Specifically, Petitioners argue that Conrad ’787 teaches that its handle configuration allows the handvac of Conrad ’787 to be “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" because "the center of gravity 524 of the handvac 112 is aligned vertically below the user's hand." *Id.* at 23-24. Petitioners provide similar arguments with respect to WO '888 for Ground 2. Specifically, Petitioners argue that WO '888 "discloses a handgrip that 'feels comfortable for a user,' and allows the user to 'maintain a comfortable wrist position and movement of the hand-held vacuum cleaner feels comfortable.'" *Id.* at 53 (quoting EX-1007 at 2:17-19, 4:27-28). However, the reasons provided in the Petition for utilization of the pistol grip handle in Conrad '787 and WO '888 are not relevant to the vacuum cleaner of Conrad '630.

The vacuum cleaner of Conrad '630 functions very differently than the handvac of Conrad '787 or the vacuum cleaner of WO '888. The vacuum cleaner of Conrad '630 includes a nozzle 112 that engages a surface to be cleaned as the vacuum cleaner moves along the surface to be cleaned. EX-1004 ¶¶ [0052]-[0053].

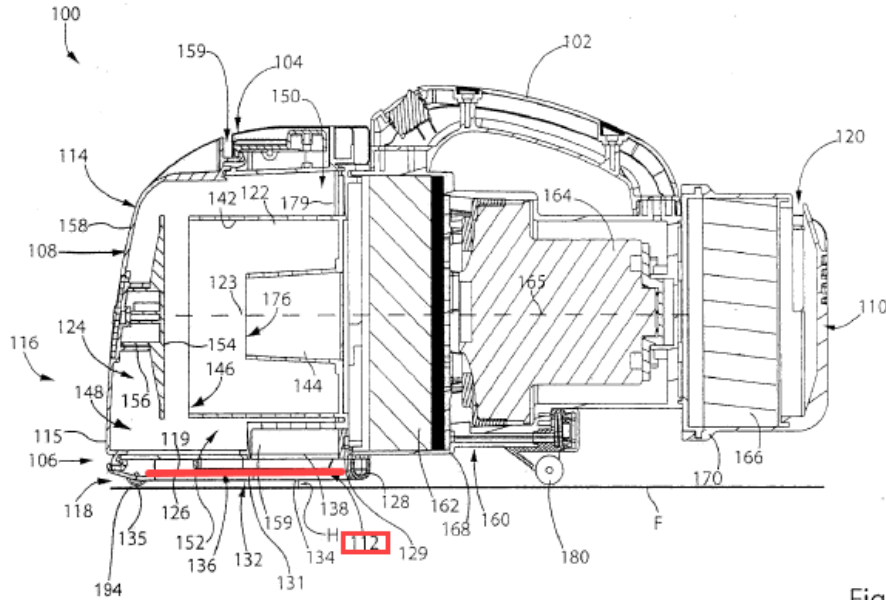
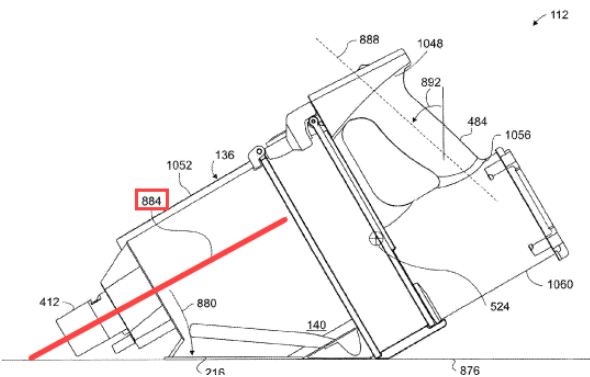


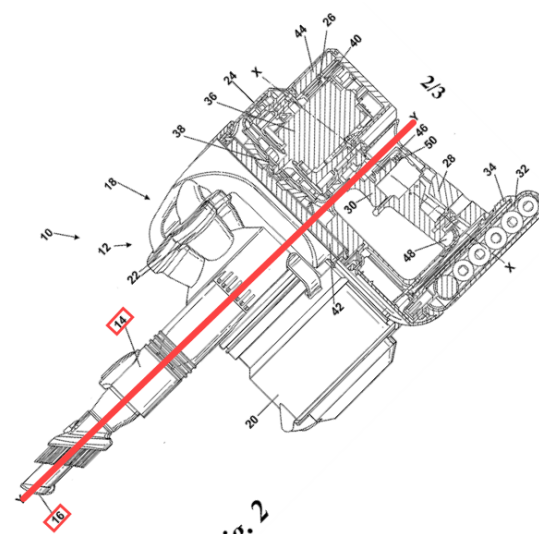
Fig. 6

EX-1004 Fig. 6 (annotated)

In contrast, Conrad '787 includes a nozzle axis 884 extending at an angle to the horizontal surface to be cleaned, EX-1006 ¶ [0312], and WO '888 includes a suction conduit 14 having a suction opening 16 and the longitudinal axis Y-Y passes through the suction opening 16 and the suction opening 16 is directed at the surface to be cleaned in a similar manner to Conrad '787, EX-1007 at 2:10-17.



EX-1006 Fig. 78 (annotated)



EX-1007 Fig. 2 (annotated)

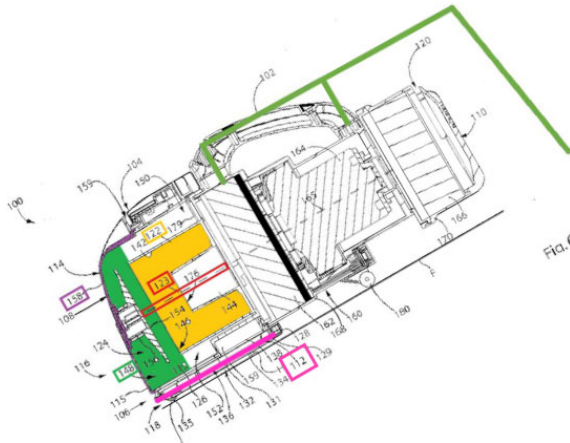
Petitioners provide no rationale for why the handles of Conrad '787 or WO '888 positioned for manipulating the handvac/vacuum cleaner to maintain the nozzle axis at an angle to the horizontal surface to be cleaned have *any* relevance to the vacuum cleaner of Conrad '630, which includes a nozzle axis perpendicular to the surface to be cleaned.

Instead, Petitioners focus on unsupported and conclusory rationales that fail to explain why a person of ordinary skill in the art would have viewed the handle of Conrad '630 as inferior and sought to replace it with the angled pistol grip handles of Conrad '787 or WO '888. For example, Petitioners argue that there is a patent in the same family as Conrad '630 illustrating a similar vacuum cleaner that teaches use of attachments. Pet. at 24. Based on this alleged teaching, Petitioners argue that an expected use of Conrad '630 would involve a user wanting to carry the vacuum cleaner in one hand while using an attachment with the other. Based on this unsupported assumption, Petitioners further allege that Conrad '787 and WO '888 teach pistol grips provide the user with a better grip and more comfort in such a configuration. Pet. at 26, 53. However, Petitioners provide *no evidence* that the allegedly more desirable grip and comfort discussed in Conrad '787 and WO '888 relates to holding the vacuum cleaner in one hand while cleaning with an attachment in the other hand or that the pistol grip handle of either Conrad '787 or WO '888 that is provided to position the nozzle at an angle would provide any

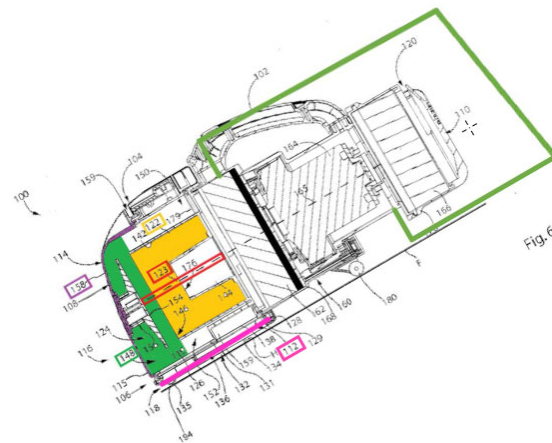
benefit for passively holding the vacuum cleaner of Conrad '630 while positioning the nozzle on the attachment separately.

Petitioners also argue that a person of ordinary skill in the art would have been motivated to add Conrad '787's pistol grip handle to Conrad '630 based upon Petitioners' expert's unsupported hypothetical use of the vacuum cleaner of Conrad '630 to vacuum surfaces elevated from the floor. *Id.* at 26. Specifically, Petitioners state that Conrad '787's "drive handle" would have provided added benefits "such as easier guiding and steering of the vacuum cleaner and allowing the user to push the vacuum cleaner without requiring the application of torque." *Id.* However, Petitioners do not explain how the steering and torque advantages would relate to Conrad '630's vacuum when, as discussed above, Conrad '630's suction is perpendicular to the surface to be cleaned and Conrad '787's pistol grip is at an angle, as required by the Challenged Claims. In other words, the handle of Conrad '787 is placed and oriented as illustrated because that positioning prevents the need for users to contort their wrist when the vacuum cleaner is pointed at an angle to the surface to be cleaned. EX-1006, ¶ [0316]. One 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.

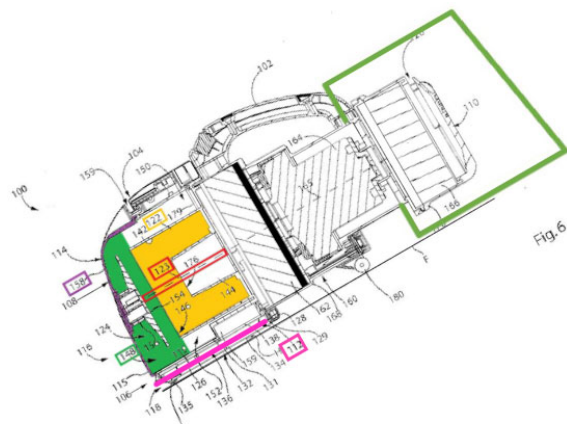
This is further illustrated using Petitioners' expert's mockups of Conrad '630 with the pistol handles of Conrad '787 or WO '888. EX-1003 ¶¶ 75-76, 130-131. As illustrated below, angling the vacuum from the proposed combination to the angle that aligns with how the vacuum cleaners of Conrad '787 and WO '888 utilize the pistol grip as required by the Challenged Claims, the suction opening 112 (highlighted in pink) 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:



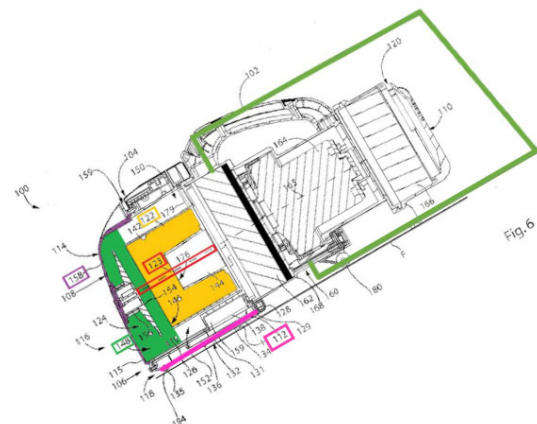
**EX-1003 ¶¶ 75, 130
(further annotated)**



**EX-1003 ¶¶ 76, 131
(further annotated)**



**EX-1003 ¶¶ 76, 131
(further annotated)**



**EX-1003 ¶¶ 76, 131
(further annotated)**

Thus, ***none*** of the alleged advantages of the pistol grip handle configuration in Conrad '787 or WO '888 have any relevance to the functions required of the handle in Conrad '630, and Petitioners have not shown that one of ordinary skill in the art would have been motivated by any of the alleged advantages of the pistol grip handle configuration to substitute Conrad '630's handle with the pistol grip handles of either Conrad '787 or WO '888.

2. Petitioners' proposed modification of Conrad '630 to include the pistol grip handles of Conrad '787 or WO '888 goes against teachings in Conrad '787 and WO '888

Petitioners argue that it would have been obvious to modify the configuration of the handle, the placement of the handle, and the orientation of the handle of Conrad '630 in order to meet the limitations of Claim 1 based on the teachings of Conrad '630, Conrad '787, and WO '888. Pet. at 23-28, 52-56. However, in arriving at this conclusion, Petitioners cherry pick passages from the references and ignore the overall teachings of the references. When discussing handle configuration, placement, and orientation, the cited references provide guidance that is particular to the intended use and positioning of the vacuum cleaner of that reference.

For example, WO '888 discloses that “the elongate handle lies transverse to the longitudinal axis of the suction conduit [14] . . . [so that] a user is able to maintain a comfortable wrist position and movement of the hand-held vacuum

cleaner feels comfortable.” EX-1007 at 2:16-19. Specifically, “the elongate[d] handle lies at an angle to the longitudinal axis [of the suction conduit 14] which is close to a right angle.” *Id.* at 2:21-23. The handle placement and orientation taught by WO ’888 provides a comfortable wrist position and movement of the hand-held vacuum cleaner because it includes placement ***opposite*** the suction conduit opening and orientation that is close to a right angle to the longitudinal axis passing through the suction opening. Figure 2 in WO ’888 shows this handle placement and orientation:

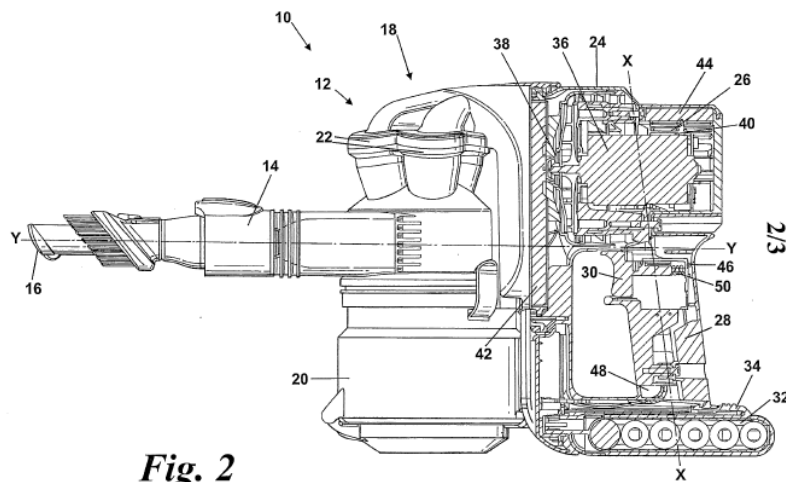
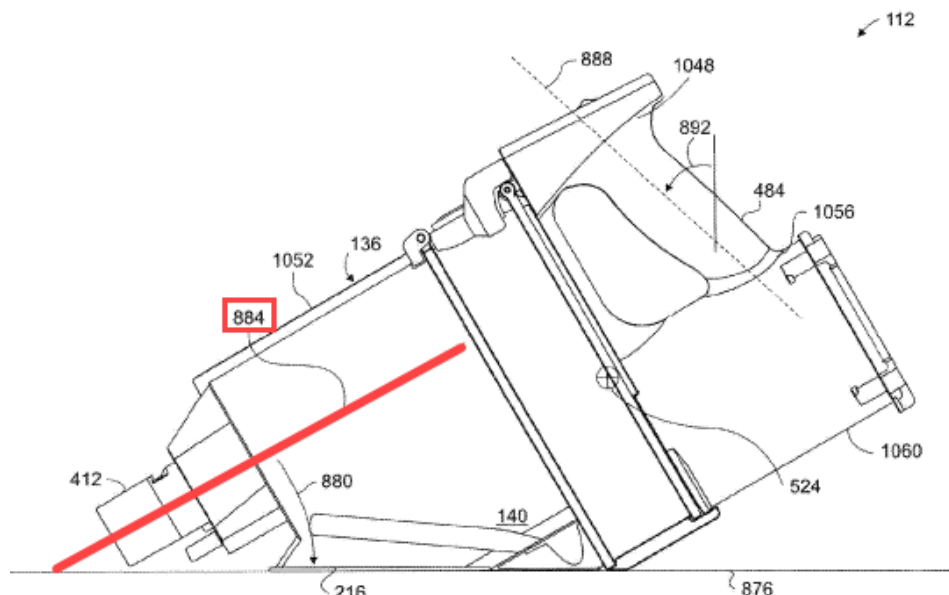


Fig. 2
EX-1007 Fig. 2

Similarly, Conrad ’787 discloses that that the handvac includes a nozzle axis (*i.e.*, longitudinal axis of suction conduit) that extends at an angle 884 to the horizontal surface to be cleaned when at rest and during use. EX-1006 ¶¶ [0312], [0314], Fig. 78. The handle is positioned and oriented in relation to the angle of the nozzle axis to the horizontal surface to be cleaned. *Id.* Specifically, the handle is

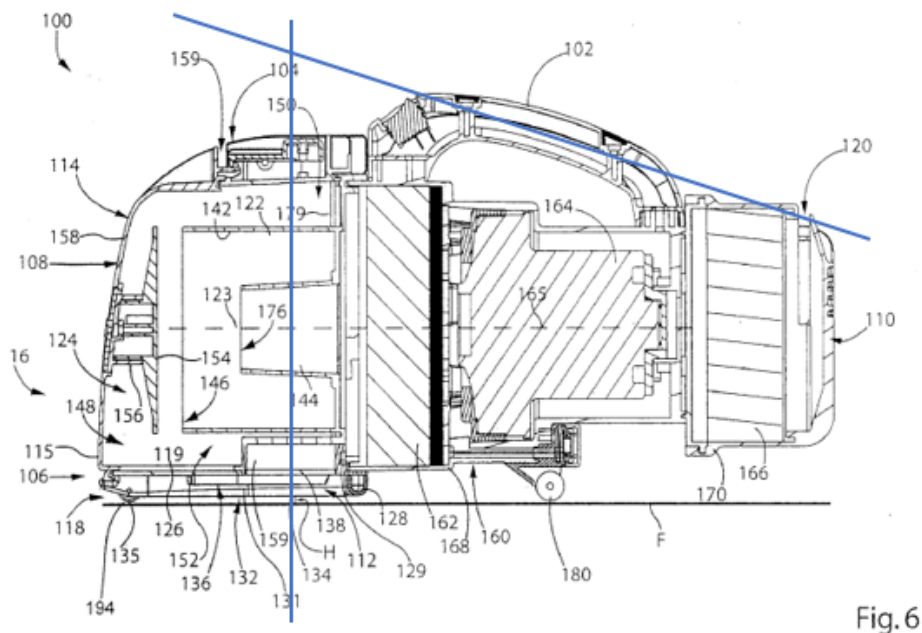
positioned and oriented to avoid an application of torque by the user's hands when held by handle, which relates to the orientation of the nozzle axis. *Id.* ¶ [0314].

Similarly, the handle is positioned for comfortable grasping when the handvac is at rest on a surface below the user's elbows, which relates to how the vacuum cleaner is oriented at rest. *Id.* ¶¶ [0316], [0317]. Thus, similar to WO '888, the handle placement and orientation taught by Conrad '787 provides “comfortabl[e] operat[ion] 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” because it includes placement opposite the suction conduit opening and orientation that is close to a right angle to the longitudinal axis passing through the suction opening. *Id.* ¶ [0314]. Figure 78 in Conrad '787 shows this handle placement and orientation:



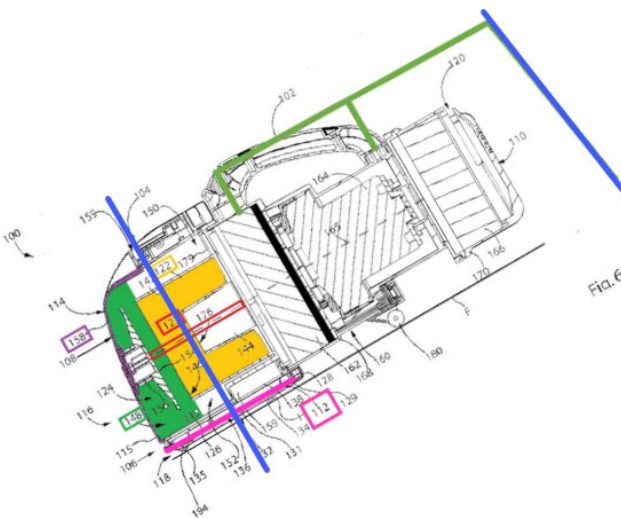
EX-1006 Fig. 78 (annotated)

The placement and orientation of the handle in Conrad '630 without modification already follows the teachings of WO '888 and Conrad '787. Similar to WO '888, Conrad '630's elongate handle 102 is substantially transverse to the longitudinal axis passing through the opening 138 of suction conduit. EX-1004 Figs. 6, 7(a). During use and at rest, the vacuum cleaner of Conrad '630 has a bottom surface that remains horizontal with the surface to be cleaned or to support during resting. *Id.* ¶ [0061]. Thus, the handle of Conrad '630 is in a similar position with relationship to a user's hand reaching down below the elbows as the handle in Conrad '787. Thus, as illustrated below, the handle of Conrad '630 without modification already meets the advantages of the handle placement stated in Conrad '787 and WO '888:

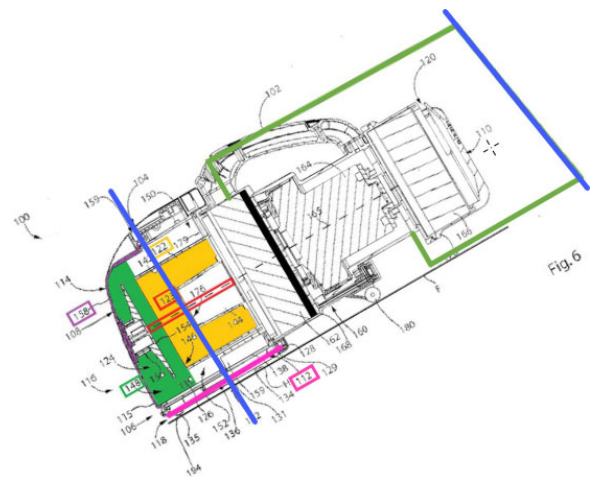


EX-1004 Fig. 6 (annotated)

Accordingly, as shown above, the placement and orientation of the handle in Conrad '630 with respect to the longitudinal axis passing through the suction opening in Conrad '630 is similar to the placement and orientation of the handles in Conrad '787 and WO '888 with respect to the longitudinal axis passing through the suction opening in Conrad '787 and WO '888, respectively. In contrast, 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 handles in Conrad '787 and WO '888. This is illustrated below using Petitioners' expert's mock ups further annotated with blue lines that show that Petitioners' proposed combination breaks the relationship between the longitudinal axis and the suction opening:



**EX-1003 ¶¶ 75, 130
(further annotated)**



**EX-1003 ¶¶ 76, 131
(further annotated)**

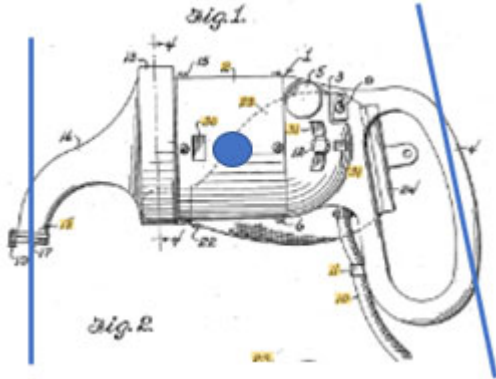


EX-1003 ¶¶ 76, 131
(further annotated)

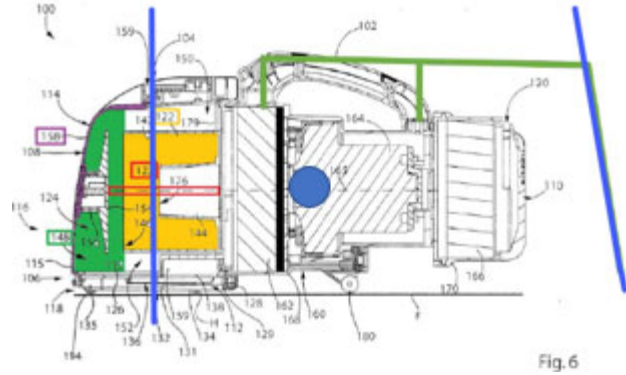


EX-1003 ¶¶ 76, 131
(further annotated)

WO '888 also recognizes, and attempts to solve, the problem presented in the '624 patent. EX-1007 at 1:19. As discussed above in Section III.B.3., WO '888 recognizes that having the handle positioned so far back from the center of mass of the hand-held vacuum cleaner, as well as the handle being arranged approximately parallel to the suction conduit, makes it tiring and uncomfortable to use the hand-held vacuum cleaner. EX-1007 at 1:29-2:2. As shown by the blue dots indicating the approximate center of gravity and the blue lines indicating the handle position and suction position in the annotations below, the modification of Conrad '630 proposed by Petitioners would result in the same configuration as the '624 patent, which is disparaged by WO '888 as uncomfortable:



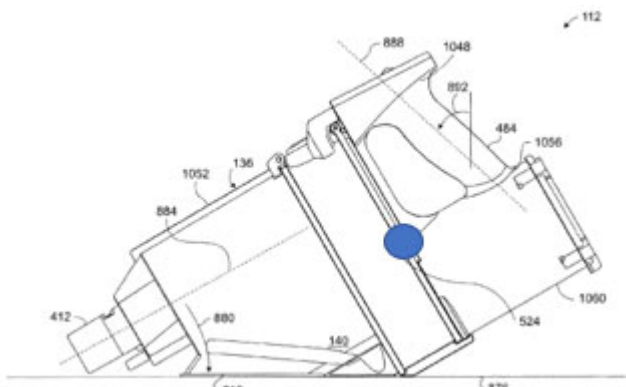
**EX-2015 Fig. 1
(annotated)**



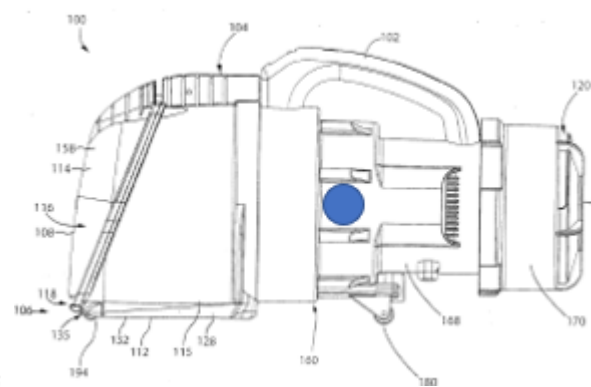
**EX-1003 ¶¶ 75, 130
(further annotated)**

Thus, WO '888 teaches away from Petitioners' proposed combination.

Conrad '787 voices a similar concern related to placement of the handle and the center of gravity of the hand-held device. The center of gravity 524 of the handvac 112 is aligned vertically below the user's hand in use. Ex-1006 ¶ [0314]. As illustrated below by the blue dots showing the approximate center of gravity, just as in Conrad '787, 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.



EX-1006 Fig. 78 (annotated)



EX-1004 Fig. 1 (annotated)

Thus, Conrad '787 also teaches away from Petitioners' alleged modification of Conrad '630 to include a pistol grip at the rear of the vacuum cleaner.

Accordingly, when the references are properly considered as a whole, not cherry picked for Petitioners' desired result, one of ordinary skill in the art would have had no reason to modify Conrad '630 in the manner asserted by Petitioners and in fact would have been dissuaded from such modification. Thus, Petitioners have not met their burden of showing the Challenged Claims would have been obvious over Conrad '630 in combination with either Conrad '787 or WO '888.

C. GROUNDS 3 and 4: Petitioners fail to show that Matsumoto in combination with either Conrad '787 or WO '888 would have rendered obvious the Challenged Claims

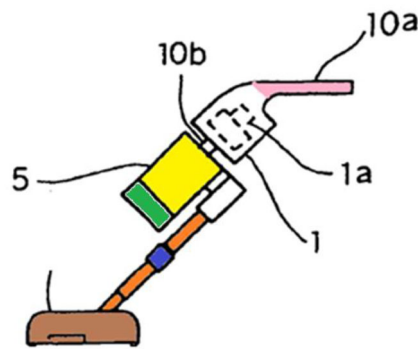
Grounds 3 and 4 fail because Petitioners have not shown that Matsumoto discloses the claimed "handheld vacuum cleaner" or that it would have been obvious to modify Matsumoto into a handheld vacuum cleaner as required by the Challenged Claims. Grounds 3 and 4 also fail because Petitioners have not shown that it would have been obvious to substitute the handle of either Conrad '787 or WO '888 for the handle of Matsumoto and orient it as required by the Challenged Claims.

1. Petitioners fail to show that it would have been obvious to modify Matsumoto into a handheld vacuum cleaner as required by the Challenged Claims

In Grounds 3 and 4, Petitioners rely upon Matsumoto⁶ to disclose the claimed “handheld vacuum cleaner.”⁷ Pet. at 70-71, 94. Matsumoto describes a full-sized vacuum cleaner with either the suction port 4 and cyclone dust collecting part 5 separated from the body 1 by a suction hose 2, EX-1005 Fig. 1, ¶¶ [0025]-[0027], or as an upright with the electric blower in the upright portion of the vacuum cleaner, *id.* Fig. 25, ¶ [0060]. Petitioners acknowledge that neither embodiment is a handheld vacuum cleaner, instead asserting that a Mockup of Figure 25 discloses the claimed “handheld vacuum cleaner”:

⁶ As to Ground 3, Petitioners also note that Conrad ’787 discloses a handheld vacuum cleaner, but Petitioners provide no analysis of how this disclosure fits into the proposed combination that substitutes the handle of the Mockup of Matsumoto with the pistol grip of Conrad ’787. Pet. at 80-82; EX-1003 ¶ 187.

⁷ The preamble of each of the Challenged Claims recites a “handheld vacuum cleaner.” In addition, Petitioners’ alleged motivations to combine Matsumoto with either Conrad ’787 or WO ’888 require a person of ordinary skill in the art to modify Matsumoto to a handheld vacuum cleaner in order to utilize the pistol grips disclosed in Conrad ’787 and WO ’888. Pet. at 64-67, 90-92.



Pet. at 71

Specifically, Petitioners assert that a person of ordinary skill in the art would have understood that Matsumoto's vacuum cleaner embodiment depicted in Figure 25 could have been modified to be used as a handheld vacuum cleaner because Figure 25 shows collars that indicates connection pipe 3 is made of multiple pipes connected to one another and connection pipe 3 could be shortened by utilizing only the uppermost pipe of connection pipe 3 resulting in the Mockup above. Pet. at 65-66; *see also* EX-1003 ¶¶ 162-164. However, there is no description in Matsumoto of the alleged collars or that connection pipe 3 is made of multiple pipes. Petitioners have provided ***no evidence*** that the feature on Figure 25 that Petitioners colored blue are collars holding together multiple pipes to form connection pipe 3.

Further, even if Matsumoto's Figure 25 physically could have been modified to become the hypothetical vacuum in Petitioners' Mockup, Petitioners have provided no evidence that one of ordinary skill in the art would have been

motivated to create Petitioners' hypothetical Mockup as the claimed "handheld vacuum cleaner." Petitioners assert that the modification of the upright vacuum cleaner of Figure 25 into the mockup variation would have been obvious because Matsumoto allegedly teaches a desire to miniaturize the vacuum cleaner. Pet. at 64 (citing EX-1005 ¶ [0068]); EX-1003 ¶ 162. However, this misrepresents the teachings in Matsumoto. Specifically, Petitioners have included an incomplete quotation from paragraph [0068] of Matsumoto in order to support their argument. When the full quotation is considered in its context within paragraph [0068], it is evident that Matsumoto is *not* teaching that the vacuum cleaner itself should be miniaturized, as that paragraph states:

Moreover, according to the present invention, a connection pipe is bent so as to function as a handle held by the user during cl [sic]. ***This helps reduce the space occupied by the handle. In this way, it is possible to miniaturize a vacuum cleaner and enhance the operability thereof.***

EX-1005 ¶ [0068] (emphasis added). Thus, Matsumoto's discussion of "miniaturization" is limited to the full-sized vacuum cleaner taking up as little space as possible, specifically as to the size of the handle. Petitioners have not met their burden of showing that this teaching would have provided motivation to one of ordinary skill in the art to modify Matsumoto's full-sized vacuum cleaner into

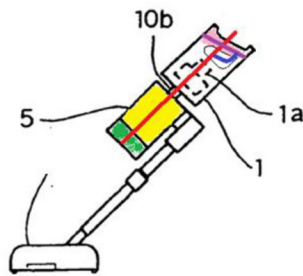
the claimed “handheld vacuum cleaner.”⁸ Thus, on this basis alone, Petitioners have not met their burden of showing the Challenged Claims are obvious over Matsumoto in combination with either Conrad ’787 or WO ’888.⁹

⁸ While Figures 6 and 7 of the ’687 Patent show a handheld vacuum cleaner that can be transformed into a stick vacuum using specific attachments, EX-1001 at 5:34-36, Matsumoto only discloses an upright vacuum cleaner and does not disclose a handheld vacuum cleaner. *See, e.g.*, Pet. at 63-64 (Petitioners admitting that Matsumoto does not disclose a handheld vacuum and has to be modified to disclose the same).

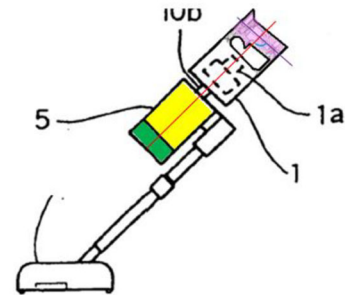
⁹ In the Chinese proceedings related to Chinese Patent Application No. 201610830364.1 (EX-2003), the Chinese counterpart of the ’687 Patent discussed above, a third-party similarly argued that a Chinese counterpart of Matsumoto, Chinese patent document no. CN1178622C (EX-2004), is invalidating prior art. The China National Intellectual Property Administration rejected this argument finding that the Chinese Matsumoto counterpart did not constitute a “handheld vacuum,” as required by the claims. EX-2005 (original); EX-2006 (translation) at 7-8. The People’s Republic of China Beijing Intellectual Property Court upheld that determination. EX-2007 (original); EX-2008 (translation) at 8-9.

2. Petitioners fail to show that it would have been obvious to substitute the handle of either Conrad '787 or WO '888 for the handle of Matsumoto and orient it as claimed in the Challenged Claims

Petitioners also fail to meet their burden of showing that it would have been obvious to substitute the handle of either Conrad '787 or WO '888 for the handle of Matsumoto. Specifically, Petitioners assert that their proposed combination would result in substituting Matsumoto's current handle in the Mockup with the pistol grip handle of either Conrad '787 or WO '888:



Pet. at 69 (Conrad '787)



Pet. at 94 (WO '888)

However, just as with Grounds 1 and 2, Petitioners have failed to show the requisite motivation to combine.

Matsumoto actually teaches away from any combination that would increase the size of the handle. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1069 (Fed. Cir. 2018) (internal quotations omitted). That is the case

here. As discussed above, Matsumoto teaches that the handle should be a bent portion of the connection pipe to *reduce* the space occupied by the handle. EX-1005 ¶ [0068]. While, as discussed above, Petitioners erroneously used this disclosure as a basis to miniaturize the entirety of the vacuum cleaner, Petitioners have ignored this disclosure for its actual relevant purpose—substitution of Matsumoto’s handle. Thus, Petitioners fail to show how, in light of this disclosure of Matsumoto, one of ordinary skill in the art would have been motivated to replace the compact handle composed of the bent portion of the connection pipe in Matsumoto with either of the pistol grips of Conrad ’787 or WO ’888 that would *increase* the size of the handle. Thus, Petitioners have not met their burden.

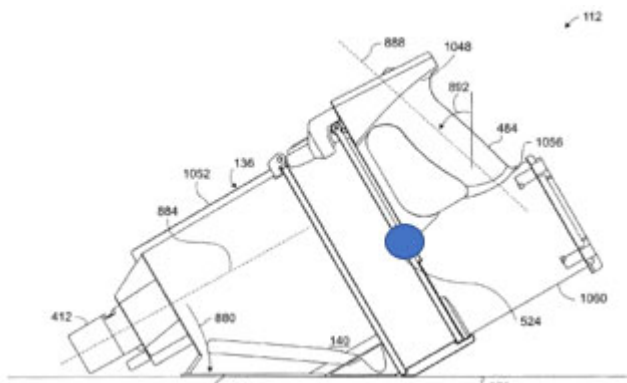
Petitioners also fail to show why one of ordinary skill in the art generally would have been motivated to replace the handle of Matsumoto at all, let alone with the pistol grip handle of Conrad ’787 or WO ’888. The only support Petitioners provide as motivation to replace Matsumoto’s handle are conclusory, unsupported statements from their expert related to the handle being allegedly “unergonomic and uncomfortable.” Pet. at 66 (citing EX-1003 ¶¶ 165-166), 91. However, neither Matsumoto itself nor Conrad ’787 or WO ’888 identify *any* issues with a handle such as the one disclosed in Matsumoto. While Conrad ’787 and WO ’888 may include general statements regarding why a pistol grip handle may be more comfortable or more useful for the vacuum configurations disclosed

in those references, Petitioners do not show how those statements demonstrate that a person of ordinary skill in the art would have been motivated to use the pistol grip handle with the Matsumoto Mockup, much less the upright vacuum cleaners actually taught in Matsumoto. For example, Petitioners do not consider the fact that the handle in the Matsumoto Mockup is not directly connected to the suction port, but instead the handle and suction port body 4 are connected through the slim, connection pipe 3. EX-1005 ¶ [0027]. Petitioners do not account for this difference in the basic formation of the Matsumoto Mockup and both Conrad '787 or WO '888.

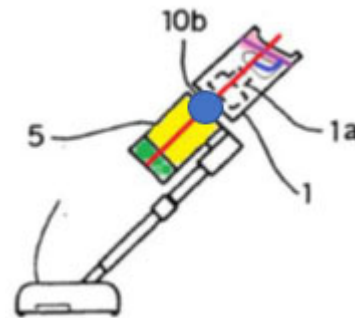
In fact, Petitioners' proposed mockup of Matsumoto goes against teachings in Conrad '787 and WO '888. Petitioners argue for Ground 3 that Conrad '787 teaches that its handle configuration allows the handvac of Conrad '787 to be “comfortably operated in an orientation that does not require an application of torque by the user’s hands when the handvac 112 is held by handle 484” because “the center of gravity 524 of the handvac 112 is aligned vertically below the user’s hand.” Pet. at 67. Petitioners provide similar arguments with respect to WO '888 for Ground 4. Specifically, Petitioners argue WO '888 “discloses a handgrip that ‘feels comfortable for a user,’ and allows the user to ‘maintain a comfortable wrist position and movement of the hand-held vacuum cleaner feels comfortable’” by including a “handgrip configuration [that] ensures that ‘the weight of the hand-held

vacuum cleaner 10 is distributed on both sides of the user's hand.” *Id.* at 53, 92 (quoting EX-1007 at 2:17-19, 4:27-28, 6:10-11). WO '888 specifies that the weight of the vacuum cleaner is distributed on both sides of the user's hand by locating “the handgrip 28 between the airflow generator 36 and the power source 32 [to allow] 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.” EX-1007 at 6:6-10.

These teachings lead away from the Matsumoto Mockup presented by Petitioners. The Matsumoto Mockup presented by Petitioners fails to result in a center of gravity (indicated by the blue dot) vertically below the user's hand as shown below.

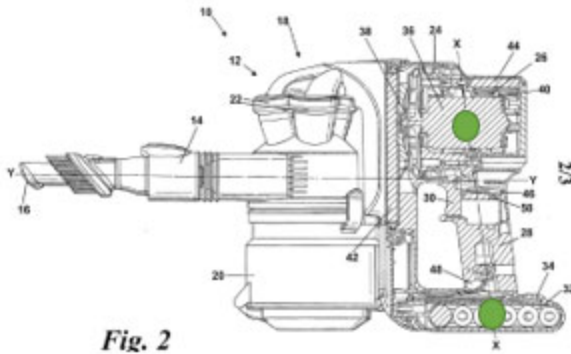


EX-1006 Fig. 78 (annotated)

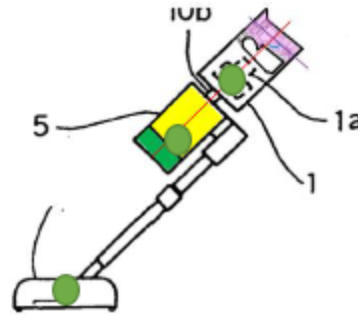


Pet. at 69 (annotated)

Similarly, the Matsumoto Mockup presented by Petitioners fails to result in the handgrip being positioned and configured to ensure that the weight of the vacuum cleaner is distributed on both sides of the user's hand as shown below with the green dots indicating the heaviest portions of the vacuum cleaners.



EX-1007 Fig. 2 (annotated)



Pet. at 94 (annotated)

In contrast to Petitioners lack of reason to modify Matsumoto to result in the Petitioners' alleged Mastumoto Mockup, Patent Owner discovered that particular advantages could be obtained from the disclosed orientation of the handle on a hand-held vacuum cleaner. Patent Owner orients the handle as recited in Claim 1 for the improvements related to use of a hand-held vacuum as described above in the summary of the '687 Patent. For example, one of the advantages provided by the particular orientation and position of the handle in the '687 Patent is to allow, "whilst gripping the handle 6, the user [to point] the vacuum cleaner 2 towards a suitable receptacle (e.g. a waste bin or bag) into which the dirt is to be emptied." EX-1001 at 5:64-66. This advantage cannot be accomplished in Petitioners' Mastumoto Mockup, much less the upright vacuum cleaner actually taught in Matsumoto. Further, such considerations are not relevant to Matsumoto, which discloses that the dust collection chamber, as illustrated in Figure 2 above, is emptied by "detach[ing] the first and second dust collecting chambers 7 and 8 integrally from the vacuum cleaner, and then separate[ing] the first and second dust

collecting chambers 7 and 8 from each other above a trash can or the like.” *Id.* ¶ [0046]. Matsumoto only teaches positioning its handle in order to push and pull the vacuum cleaner to move the suction port 4 along the floor and does not disclose optimizing the handle for emptying the dirt collector, which is accomplished without use or consideration of the handle placement. EX-1005 ¶ [0046].

Accordingly, when the references are properly considered as a whole, including the entirety of their configurations, one of ordinary skill in the art would have had no reason to modify Matsumoto in the manner asserted by Petitioners and in fact would have been dissuaded from such modification. Thus, Petitioners have not met their burden of showing that a person of ordinary skill in the art would have been motivated to combine Matsumoto with either Conrad ’787 or WO ’888 in a way that discloses all of the limitations of the Challenged Claims.

V. CONCLUSION

For the foregoing reasons, the Petition should be denied.

Respectfully submitted,

Faegre Drinker Biddle & Reath LLP

By: /Christopher P Bruenjes/
Christopher P. Bruenjes
Reg. No. 62,941
Attorney for Patent Owner

Date: November 30, 2023

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), counsel for Patent Owner certifies that this document complies with the type-volume limitations of 37 C.F.R. § 42.24(b).

According to Microsoft Office Word's word count, this document contains approximately 9,575 words, including any statement of material facts to be admitted or denied in support, and excluding the table of contents, table of authorities, exhibit list, certificate of service or word count, or appendix of exhibits or claim listing.

Date: November 30, 2023

/Christopher P Bruenjes/
Christopher P. Bruenjes

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing **PATENT OWNER'S PRELIMINARY RESPONSE PURSUANT TO 37 C.F.R. § 42.017** was served upon Petitioners by email on November 30, 2023:

GDC-SharkNinjaIPRD@gibsondunn.com

Date: November 30, 2023

/Christopher P Bruenjes/
Christopher P. Bruenjes