

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DYSON TECHNOLOGY LIMITED AND DYSON, INC.,
Petitioners,

v.

OMACHRON INTELLECTUAL PROPERTY INC.,
Patent Owner.

Case No. IPR2024-00670
U.S. Patent No. 8,607,407

PATENT OWNER'S RESPONSE

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TABLE OF ABBREVIATIONS

Abbreviation	Description
'407 Patent	U.S. Patent No. 8,607,407 (Ex1001)
Beskow	U.S. Patent Publication No. 2008/0040883 to Beskow
Butler	PCT Publication No. 2007/084543 to Butler et al.
Challenged Claims	Claims 1–25 of U.S. Patent No. 8,607,407
Conrad335	U.S. Patent Publication No. 2007/0209335 to Conrad
Fig.	Figure
ID	September 18, 2024 Institution Decision, IPR2024-00670, Paper 10
IPR	<i>inter partes</i> review
IPVG	UK Patent No. GB283,179 to Inventia Patent-Verwertungs-Gesellschaft
Jianan	Chinese Patent Publication No. 101,061,932 to Jianan
Khalil	U.S. Patent Publication No. 2006/0156508 to Khalil
Martelliere	French Patent No. 1,094,603 to Martelliere
Patent Owner	Omachron Intellectual Property Inc.
Petitioners or “Dyson”	Dyson Technology Limited and Dyson, Inc.
POSITA	person[s] of ordinary skill in the art

EXHIBIT LIST

Exhibit Number	Description
Ex2001	Merriam-Webster (merriam-webster.com) definition of “door”
Ex2002	Declaration of Dr. Amos Winter in Support of Patent Owner’s Response
Ex2003	PCT Publication WO2008/009890 by Dyson
Ex2004	“Dyson’s greatest inventions, from the Ballbarrow to the Airblade”, https://www.stuff.tv/features/dysons-greatest-inventions-ballbarrow-airblade/ (accessed Dec. 7, 2024)
EX2005	“Dyson Cyclone V10 vacuum review: Bigger isn't always better”, https://mashable.com/article/dyson-cyclone-v10-review (accessed Dec. 10, 2024)
EX2006	U.S. Patent No. 10,433,687
EX2007	Nov. 30, 2023, Patent Owner’s Preliminary Response, IPR2023-01322, Paper 6
EX2008	Nov. 26, 2024 Deposition Transcript of Dr. Robert Giachetti

I. INTRODUCTION

Omachron Intellectual Property Inc. files this Patent Owner's Response in response to the Petition of Dyson Technology Limited and Dyson, Inc. ("Petitioners") for *Inter Partes* Review of U.S. Patent No. 8,607,407.

The '407 Patent discloses and claims a novel openable door at the front end of a cyclonic vacuum cleaner that is not disclosed in any of the prior art cited in the Petition and is also not obvious based on the proposed Grounds. The Institution Decision correctly found that the Petition failed to establish a likelihood of success on four of the five Grounds presented. And, based on the additional evidence submitted with this Response, the Board should also find that the last Ground is legally insufficient to show that the Challenged Claims are invalid.

The '407 Patent discloses a hand vacuum cleaner which comprises at least one cyclone and at least one dirt collection chamber. The dirt collection chamber has an openable door positioned at the front end of the vacuum cleaner. Ex1001, Abstract. The '407 Patent provided a solution to emptying a handheld vacuum cleaner through a novel and non-obvious approach of providing a front openable door to a dirt collection chamber, so that there is no impediment to the door being opened and so that when the vacuum cleaner is inclined or inverted to empty the vacuum cleaner, no portion of the vacuum cleaner need be in front of the door. And, accordingly, the

dirt leaving the vacuum cleaner will not contact any portion of the vacuum cleaner when it is poured, e.g., into a garbage can. Ex1001, 1:55–62.

For example, according to claim 1 of the '407 Patent, a first cyclone unit comprises at least one cyclone and at least one dirt collection chamber, and an openable door on the front wall of the hand vacuum cleaner opens up both the cyclone and the dirt collection chamber. Ex1001, 9:5–17. None of the prior art references cited (as discussed below) discloses or teaches this feature, and the Petition failed to demonstrate that Petitioners proposed modifications to the prior art would render this feature obvious.

Specifically, Petitioners bear the burden to prove not simply that it would have been obvious at the time to add a door at the front end of any vacuum cleaner, but that it would have been obvious to combine the elements of the asserted references *to arrive at the specific configuration* claimed by the '407 Patent. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007); *see also Takeda Chem. Indus., Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1356-57 (Fed. Cir. 2007). Petitioners must therefore prove that it would have been obvious to provide the specific configurations recited in the '407 Patent claims. Petitioners fail to meet this burden for several reasons.

First, the references (either individually or combined) fail to disclose or teach all elements of the Challenged Claims. Above all, Petitioners' combinations do not result in an openable front door required by claims 1–25.

Second, Petitioners fail to properly evidence a motivation to combine the asserted references to form the claimed invention, specifically failing to show a motivation to specifically configure the combined vacuum as the '407 Patent does. To create Petitioners' combined vacuums, Petitioners pick-and-choose elements from disparate prior art references and assemble them *following the configuration that made the invention novel*. It is only by using the '407 Patent as a guide that Petitioners arrived at an imitation of the claims' design. This is improper hindsight.

Critically, Petitioners identified *no teaching* in the art to modify the references (specifically, Conrad335 and Jianan) in the specific ways Petitioners propose to re-create the new configuration claimed by the patent. At bottom, the purported motivation to combine cherry-picked elements from the prior art and then heavily modify them as claimed in the '407 Patent is supplied only by Dr. Giachetti's naked testimony—no contemporaneous or prior reference is cited as ever suggesting a front door in the specific way claimed by the '407 patent. Rather, Petitioners rely solely on Dr. Giachetti's conclusory view that the claimed features at issue are obvious.

Further, Petitioners provided cursory and, at times, illogical, discussion of the asserted prior art references with respect to each element, often merely reproducing

the language of a particular claim element and declaring that the element is met by the reference without reason or explanation. *See Netflix, Inc. v. DivX, LLC*, 84 F.4th 1371 (Fed. Cir. 2023) (“Ultimately, it is the petitioner’s burden to present a clear argument.”). Petitioners therefore cannot meet their burden of explaining “with particularity” the “evidence that supports the grounds for the challenge to each claim.” 35 U.S.C. § 312(a)(3); *see also Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016).

For these reasons, discussed below, the Board should find that Petitioners failed to establish that any of the challenged claims is unpatentable.

II. THE PETITION

A. The Asserted Grounds

The Petition asserts five “Asserted Grounds” for invalidity:

Ground	Basis and References	Claims
1	§ 102, Martelliere	23–24
2	§ 102, Butler	23–24
3	§ 103, IPVG and Conrad335	1–25
4	§ 103, Martelliere and IPVG	23–24
5	§ 103, Jianan and Khalil	1–25

B. Claim Construction

At this stage, Patent Owner does not submit any terms for construction and contends that all terms should be given their plain and ordinary meanings.

C. Person of Ordinary Skill in the Art (“POSITA”)

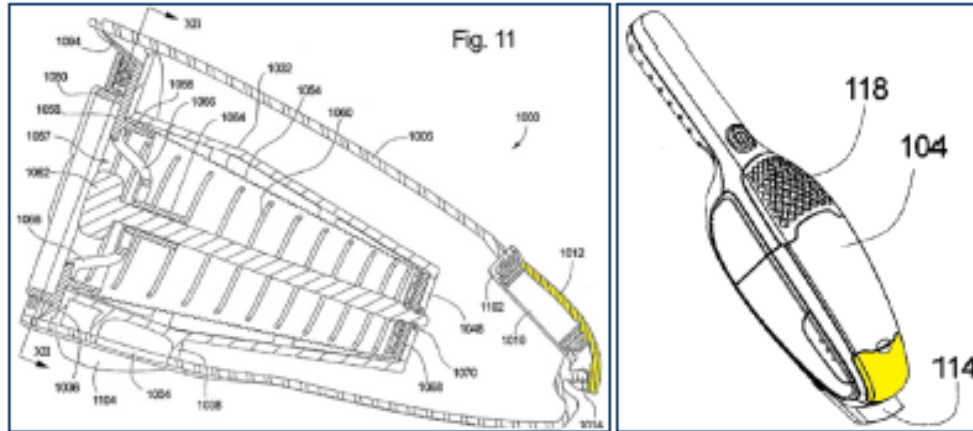
For the purposes of this POR, Patent Owner does not challenge Petitioner’s POSITA definition.

D. Prosecution History of the ’407 Patent

For nearly three years, the United States Patent and Trademark Office examined the application that issued as the ’407 Patent. Ex1004. Throughout this process, Patent Owner discussed and distinguished the claimed features of the ’407 Patent from various cited prior art references, emphasizing (1) the importance of the placement of the door “on the front wall” of the hand vacuum, *id.* at 143, (2) that the door is large and functions as a “main dirt outlet,” *id.* at 144, and (3) that the door opens both the cyclone and the dirt collection chamber at once to allow dirt to “easily exit from the dirt collection chamber,” *id.* at 170–71.

The Examiner agreed, noting that the “prior art of record considered as a whole . . . neither anticipates nor renders obvious, the cyclone and dirt collection chamber having an openable door, the front wall comprising the openable door,” in combination with the respective remaining limitations of the independent claims 1, 9 [issued as claim 23], 24, and 25 and issued a notice of allowance. Ex1004, 218–19. The Examiner accepted the Applicant’s arguments distinguishing each of the allowed independent claims from the teachings of Beskow (U.S. Pub. No. 2008/0040883), shown below. Ex1004, 169–72, 217. For example, as explained by

the Applicant, “in Beskow, a portion of a *sidewall* of the dirt collection chamber 1006 is opened”—*not* a “front wall.”



Ex1015, Figs. 1B, 11 (annotated). The Office considered, discussed, and explicitly accepted that “front wall comprising [an] openable door” as claimed was an improvement over the prior art’s sidewall openings.

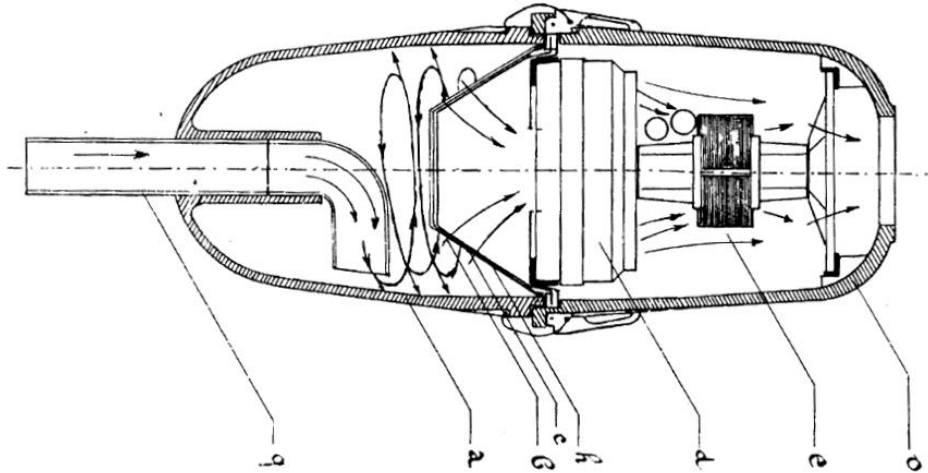
As Petitioners below, Petitioners here create similar such sidewall openings in their proposed combinations of prior art and superficially treat them as a front door. These combinations fail.

III. OVERVIEW OF ASSERTED REFERENCES

A. Martelliere

Martelliere is a 1955 French patent for a “broom type vacuum cleaner model” that addresses the “recognized difficulty” of emptying dust bags by “replacing fabric [dust] bags” with a container made of “smooth and transparent material.” Ex1010, 1. This transparency allows a user to see how full the dust container is to “better

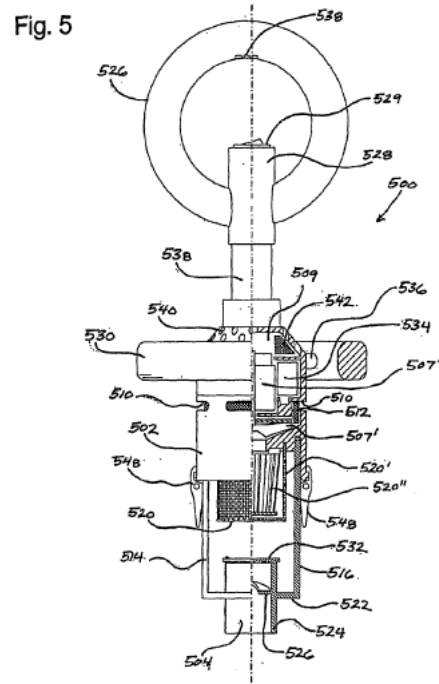
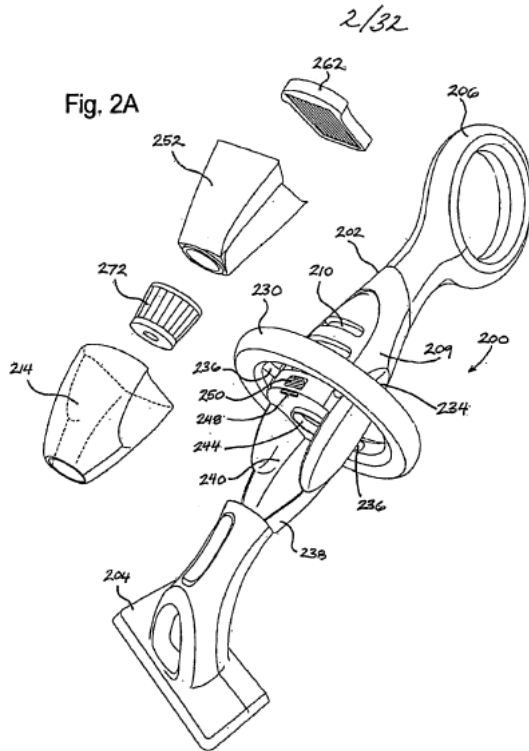
judge when it must be emptied” and to “even see a lost object sucked up by the device and recover it.” *Id.*



Id., 2.

B. Butler

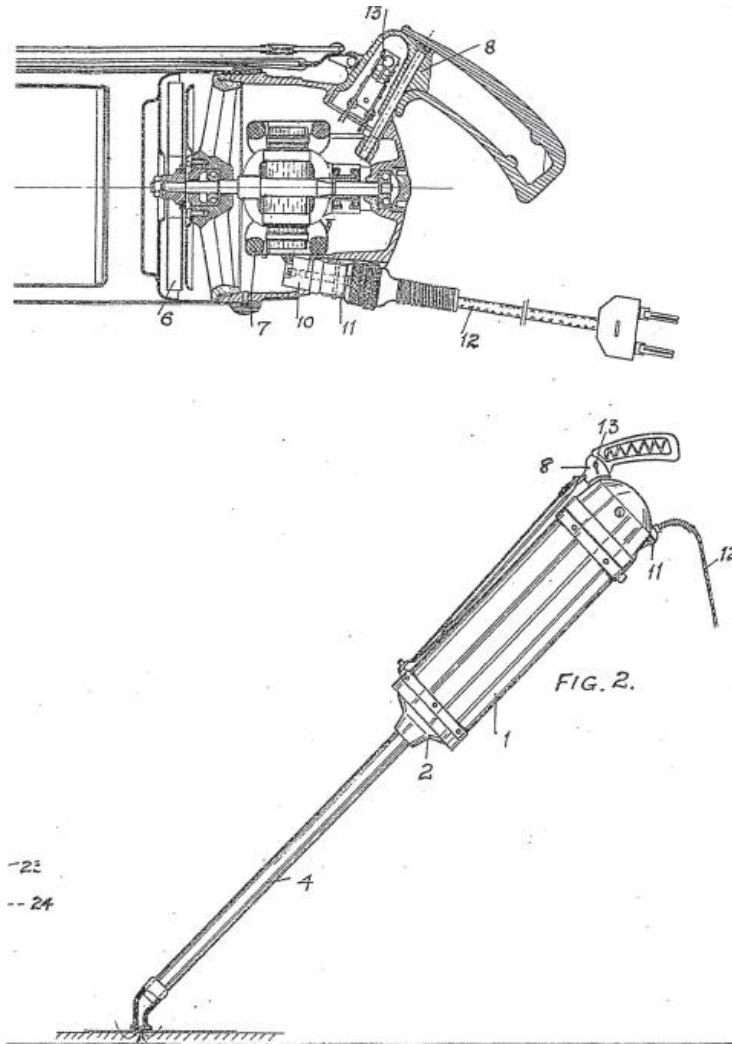
Butler is a 2007 PCT publication that details several distinct embodiments of a specialized “Stair Cleaning Vacuum.” Ex1020, Title. Butler discusses various existing solutions such as “upright and canister vacuum cleaners,” “stick vacuums,” and “compact hand-held vacuums,” and concludes that there “exists a need for an improved vacuum cleaner” specifically adapted for cleaning “raised” surfaces, and “particularly stair treads and risers.” *Id.*, 1:5–24, 310–16. Two distinct embodiments from Butler—one associated with Figure 2A and the other with Figure 5—are shown below.



Id., Figs. 2A, 5.

C. IPVG

IPVG is a 1928 UK patent directed to a stick vacuum cleaner having an “enclosed dust bag” that protects the user from “accidental contact with current carrying parts” of the vacuum, such as the “securing means for the handle.” Ex1006, 1:10–21, 1:34–41. IPVG describes a “one-piece insulating cover adapted to cover the handle,” including a conductive screw that secures the handle to the casing of the vacuum cleaner. *Id.*, 1:34–41.

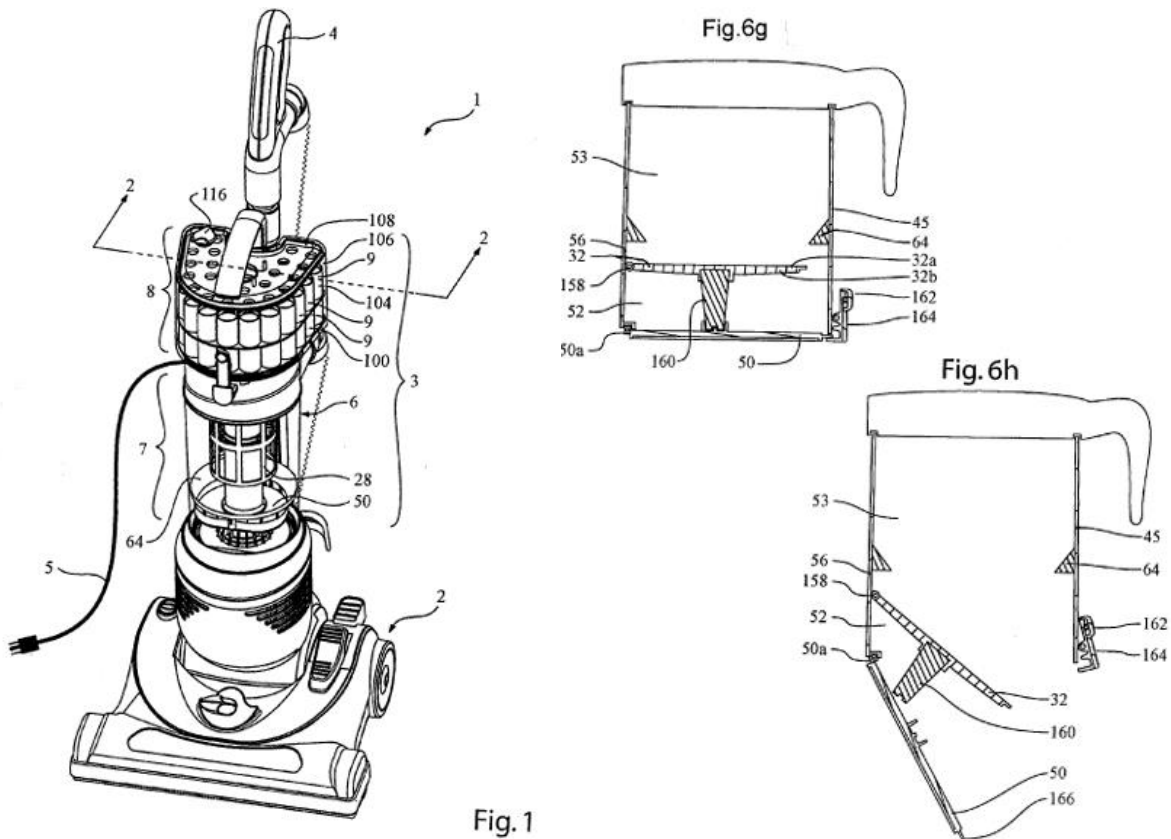


Ex1006, Fig. 2.

D. Conrad335

Conrad335 is a 2007 U.S. patent application publication describing an upright vacuum with “a cyclone separator” having a cyclone chamber divided by a plate into “an upper cyclone chamber and a lower dirt collection chamber.” Ex1005, ¶¶4, 23. The cyclone chamber and dirt collection chamber are “removable as a closed unit from the vacuum cleaner” and, once removed from the body of the vacuum cleaner, can be emptied through an “openable bottom.” *Id.*, ¶98. The disclosed cyclonic

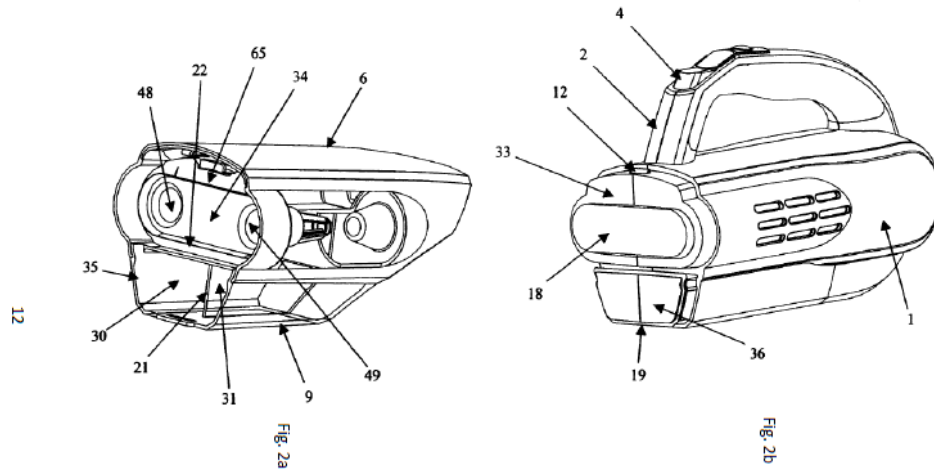
separator is generally upright orientation, with the dirt collection chamber positioned beneath the cyclone chamber. *Id.*, ¶4.



Figs. 1, 6g, 6h.

E. Jianan

Jianan is a 2007 Chinese patent application publication describing a “handheld vacuum cleaner” with a “detachable dust cup” “connected to the cyclone body through the dust release hole.” Ex1013, Abstract.

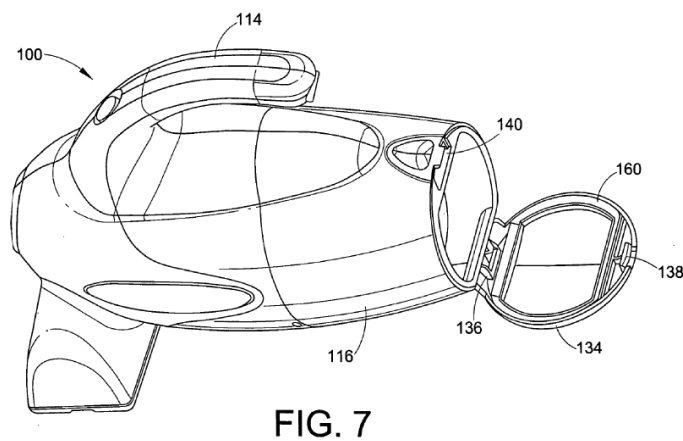


Id., Figs. 2a, 2b.

F. Khalil

Khalil is a 2006 U.S. patent application publication describing a “hand-held vacuum” with a “cyclonic flow chamber” and “rotatably detachable” “dirt cup” and “dirt cup door” located at the rear of the vacuum, with the suction nozzle in the front.

Ex1014, Abstract.



Id., Fig. 7.

IV. GROUND 3: IPVG IN VIEW OF CONRAD335 DOES NOT RENDER OBVIOUS CHALLENGED INDEPENDENT CLAIMS 23–24

This is the only ground that the Board in the Institution Decision found sufficiently supported institution of IPR. At a high level, in the Petition, this Ground proposes to replace the horizontally oriented, dust-bag separation in IPVG with Conrad335’s vertically oriented cyclonic separator. In the Institution Decision, the Board commented that Patent Owner did not provide enough evidence in the Preliminary Response showing that Petitioners’ proposed combination is defective. ID, 14. This Patent Owner Response provides evidence to demonstrate why the proposed combination and modification would not have been obvious and to refute Petitioners’ expert’s hindsight-guided arguments.

A. Petitioners Fail to Show a Motivation to Combine IPVG and Conrad335, and Then to Modify It, in the Way the Claims Require

The Petition failed to prove that a POSITA would have been motivated to **combine and modify** the asserted references *in the manner required* to achieve the claims of the ’407 Patent. Specifically, as claimed in the ’407 Patent the openable door is to be on the **front** wall. Ex2002, ¶¶59–66. See Ex1001, cl. 1 (“d) the cyclone and the dirt collection chamber having an openable door, the front wall comprising the openable door”).

While *KSR* rejected a rigid application of a teaching, suggestion, or motivation test, “the Court acknowledged the importance of identifying ‘a reason that would

have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *Takeda Chem. Indus. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1356–57 (Fed. Cir. 2007) (quoting *KSR*, 550 U.S. at 418. “Care must be taken to avoid hindsight reconstruction”—Petitioners cannot use “the patent in suit as a guide through the maze of prior art references,” to teach combining them “in the right way so as to achieve the result of the claims.” *Grain Processing Corp. v. Am. Maize-Prod. Co.*, 840 F.2d 902, 907 (Fed. Cir. 1988).

Combining IPVG and Conrad335 without Petitioners’ significant unsubstantiated modifications would at a maximum lead to a configuration that is similar to Dyson’s PCT Publication WO2008/009890 (Ex2003), which is cited on the first page of the ’407 Patent and was explicitly overcome during prosecution and cited on the face of the ’407 Patent. Ex1001, References Cited and 1:23-33.

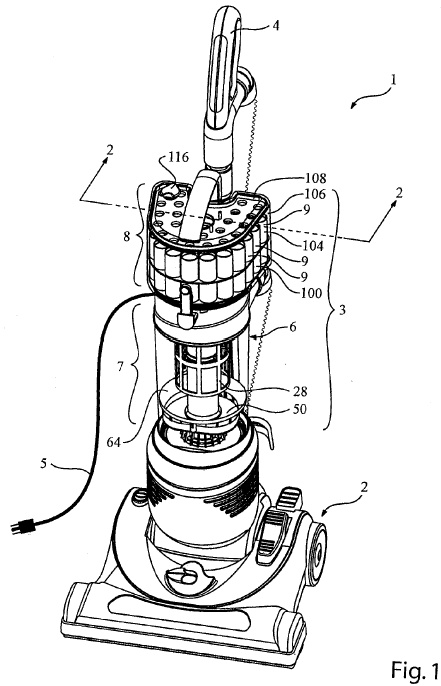
Here, Petitioners identified *no* extrinsic or contemporaneous evidence suggesting that an *upright* cyclonic separator with a *bottom* door (such as in Conrad335 or Dyson’s PCT Publication WO2008/009890) should be further manipulated to relate that door by 90 degrees to create a front door. Ex2002, ¶¶61–66. No reference is cited as *ever* attempting the creative solution recited in the ’407 Patent’s claims.

Only by improperly using the ’407 Patent Claims as a guide—coupled with Dr. Giachetti’s conclusory, unsupported fiat—do Petitioners form its combination

and modification. This is insufficient legally and factually to meet Petitioner's burden.

Petitioners' proposed combined and modified vacuum constitutes an improper "hindsight reconstruction" using "the patent in suit as a guide" to "combine the right references in the right way" to "achieve the result of the claims." See *Grain Processing*, 840 F.2d at 907 (internal citations omitted). Without such hindsight-guided reconstruction, a skilled artisan would have arrived, at most, at a hand vacuum with an cyclone separator with an vertical or upright cyclone axis orientation, a configuration of hand vacuum admitted as prior art on the first page of the '407 Patent that it seeks to improve on.

Conrad335 is directed to an *upright* vacuum which has a detachable *upright* cyclonic separator, and is exclusively focused on the design of a plate "positioned intermediate the opposed ends (**the top end and the bottom end**)" that separates a cyclone chamber on top and a dirt collection chamber beneath the cyclone chamber. Ex1005, ¶4; Ex2002, ¶¶60–63.

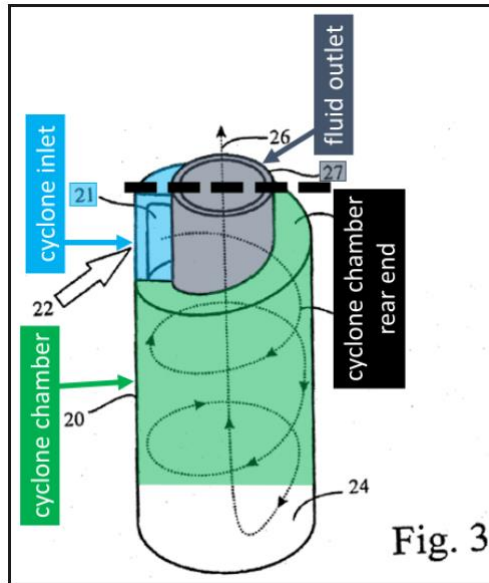


Ex1005, Fig. 1.

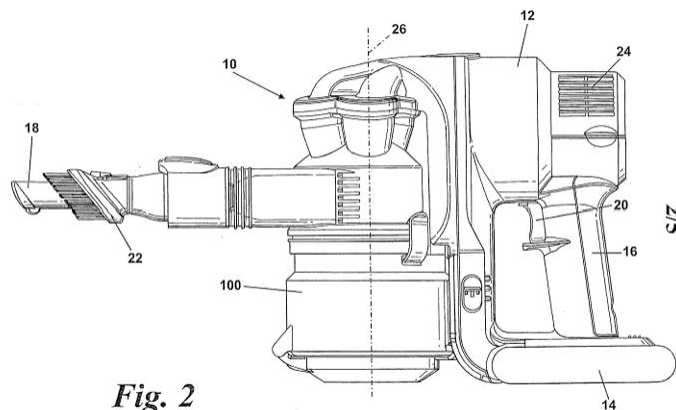
In contrast, IPVG discloses a dust bag type vacuum and its explicit objective is “to provide an apparatus of the above type with a handle ... so that the operator on holding the same during manipulation of the apparatus may be fully protective against accidental contact with current carrying parts of the apparatus. Ex1006, 1. Ex2002, ¶61. As reiterated multiple times in IPVG, the handle and casing as disclosed in IPVG is “to render the operator completely safe from contact with current carrying parts of the apparatus.” Ex1006, 1. Ex2002, ¶62. IPVG thus offers no motivation to modify the vacuum’s dirt separation method or air pathways in a way that could affect the inherently designed electrical wirings, for safety. Ex2002, ¶62.

Petitioners cite to one paragraph of Conrad335 that the cyclonic separators “may be used ... to create ... a stick vacuum” or “a hand vacuum.” Pet., 29-30; Ex1005, ¶376. However, none of the embodiments of cyclonic separators disclosed in Conrad335 has a front openable door, and every embodiment disclosed in Conrad335 is a cyclonic separator with an upright orientation with a bottom openable door. Ex2002, ¶63. Because Petitioners point to the bottom door of the cyclone separator embodiments of Conrad335 as disclosure of the “front” door, they must rotate it by 90 degrees. Pet., 44-45. But Conrad335 provides no motivation to rotate the cyclone by 90 degrees, nor did Petitioners cite to any teachings in Conrad335 to rotate the cyclonic separator. In fact, because it is so clear that Conrad335 contemplates a plate positioned intermediate between “the top end and the bottom end” of the cyclonic separator, Conrad335 provides no suggests to move away from this upright configuration. Ex1005, ¶4; Ex2002, ¶63.

Even if a POSITA were assumed to be replacing the dust bag separation apparatus of IPVG with Conrad335’s cyclonic separator, he/she would have incorporated the cyclonic separator with an upright orientation as Conrad335 shows. Ex2002, ¶64. Further, as Petitioners agree, Conrad335 discloses that the air inlet and air outlet are on the same end. Pet., 52-53.



Ex1003, Fig. 3 (annotated by Petitioners, restored to the original orientation). Given that IPVG requires a “suction pipe 4” that leads air to the separator’s air inlet, the upright orientation of the cyclonic separator is more conducive to attaching such suction pipe. The end result of such a substitution is therefore a vacuum with a handle and a motor at the rear end, and an upright cyclonic separator with an openable bottom door. However, the ’407 Patent on its very first page admits that this is in the prior art and is the starting point of the ’407 Patent’s disclosures.



Ex2003, Fig. 2.; *see* Ex1001, 1:23-33. The stated objectives of the '407 Patent have not been solved by this combination, i.e., “so that there is no impediment to the door being opened, and further, so that when the vacuum cleaner is inclined or inverted to empty the vacuum cleaner, no portion of the vacuum cleaner need be in front of the door, and accordingly, the dirt leaving the vacuum cleaner will not contact any portion of the vacuum cleaner when it is poured, e.g., into a garbage can. Ex1001, 1:55–62; Ex2002, ¶64.

Petitioners must rotate the cyclonic separator of Conrad335 to make its bottom door a “front” door. Pet., 44–45. But Petitioners cite to nothing to support its proposed rotation of the cyclonic separator according to either Conrad335 or Dyson’s PCT Publication WO2008/009890. Instead, Petitioners attempted to hide this significant change by rotating the cited figures of Conrad335 without **any** justification. Pet., 28, 37, 48, 49, 57, 58, 66, 67. In doing so, Petitioners fail to fully address the fact that Conrad335’s bottom door does not have an air inlet, and thus would not work as the “openable door” for IPVG, because IPVG includes “suction opening 3” through its “screwed cover 2.” Ex1006, 1.

The question here is not whether there was a motivation to generically add a cyclonic separator. The question is whether there was a motivation to incorporate an openable door on the front wall of the vacuum as the claims require. *See HTC Corp. v. Lemaire Illumination Techs.*, IPR2019-00090, 2019 WL 1581959, at *9

(PTAB Apr. 12, 2019) (motivation must be “sufficiently specific as to the manner of the proposed combination”).

Here, as detailed below, Petitioners identified no contemporaneous or prior evidence of any front door to a cyclonic separator. Ex2002, ¶65. At bottom, Petitioners relied solely on its expert’s conclusory opinion that the door according to Conrad335 is somehow a “front” door, despite that Conrad335 explicitly and exclusively discloses the cyclone separators to be in the upright configuration (Pet., 45-46 and Ex1002, ¶200), ignoring the infirmity in such *ipse dixit*. “[C]onclusory expert testimony is inadequate to support an obviousness determination....” *TQ Delta, LLC v. CISCO Sys.*, 942 F.3d 1352, 1359, 1362 (Fed. Cir. 2019).

To be clear, Petitioner’s problem here is not merely that “all elements” of the ’407 Patent claims are not shown in the prior art. Petitioner’s problem is that neither Conrad335 or IPVG or any prior art admitted in the ’407 Patent even attempts the kind of solution that the ’407 Patent discloses—no cited prior art teaches using an openable door on the front wall. Ex2002, ¶65. Petitioners’ Ground 3 here should thus be rejected.

The Petition in two occasions further provided an alternative modification of replacing IPVG’s “screwed cover 2” with Conrad335’s bottom door. Pet., 39, 47. This modification presents a totally different combination and modification than what Ground 3 of the Petition proposed for the rest of the elements, *i.e.*,

incorporating a cyclonic separator from Conrad335 and rotating it by 90 degrees so that the door from Conrad335 would be on a “front wall” as the Challenged Claims require. This is improper. Further, simply substituting the screwed cover of IPVG with the door of Conrad335 creates a combination that does not have a cyclone (therefore failing at least elements [1c]/[23c]/[24c]/[25c]).

Further, the Petition failed to address how the “suction pipe 4” attached to the original “screwed cover 2” is to be placed with respect to the openable door from Conrad335. It failed to address why a POSITA would have been motivated to make the proposed modification that poses the additional question of where the suction pipe is to be routed. Ex2002, ¶66. The Petition further failed to address how the “suction pipe 4” attached to the original “screwed cover 2” is to be placed with respect to the openable door from Conrad335. The Petition failed to address why a POSITA would have been motivated to make the proposed modification that poses the additional question of where the suction pipe is to be routed. A POSITA would have understood that adding the suction pipe directly on the modified “front door” would exert great torque stress on the door hinge, leading to flimsy opening and closing of the door as well as short longevity of the door hinge. Alternatively, rerouting the suction pipe would further add weight to the handheld vacuum, create more bends in airflow, leading to more suction loss. Ex2002, ¶67. The Petition failed to address why a POSITA would have been motivated to make the proposed

modification that poses the additional question of where the suction pipe is to be routed.

B. Lack of a Reasonable Expectation of Success

There is a “clear distinction” in the law between “a patent challenger’s burden to prove that a skilled artisan would have been motivated to combine prior art references” and “the additional requirement that the patent challenger also prove that the skilled artisan would have had a reasonable expectation of successfully achieving the claimed invention from the combination.” *Eli Lilly v. Teva Pharms. Int’l GmbH*, 8 F.4th 1331, 1344 (Fed. Cir. 2021). “Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant’s disclosure.” *In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991).

Here, Petitioners identified a relatively low level of experience as being ordinary in the field—only a Bachelor’s Degree and two years of experience is required of POSITA. *See* Pet., 12. The challenges below would have been beyond such POSITA’s ability to reasonably resolve them. Ex2002, ¶69. Accordingly, a POSITA would not have had the required reasonable expectation of success in extracting the cyclonic separator from the Conrad335 disclosed embodiments, rotating it, substituting the dust bag of IPVG, and make all other wiring and air flow changes. Ex2002, ¶70. The Petition therefore fails and should be denied.

The fundamental form factors of IPVG and Conrad335 are different (stick vacuum vs. upright canister) and they differ in shape, size, and dimension. Ex2002, ¶¶71–73. Even if it were assumed that POSITA were motivated to combine IPVG and Conrad335’s teachings—there would be substantial difficulties in doing so.

To take a cyclonic separator and incorporate it into a handheld stick vacuum requires far more work than just “simple substitution” as Petitioners and Dr. Giachetti claimed. Ex2002, ¶¶71–73. A general aspiration by Conrad335 that a cyclone separator may be used in a stick or handheld vacuum does not mean that it is an easy substitution. Ex2002, ¶72. In order to make the change, the size of the cyclonic separator and air pathway have to be adjusted, and the fluid inlet and outlet must be adjusted with considerations to the suction loss introduced by narrower air passages, more frequent air bends, and the re-routing of hoses, turning the upright bases into a lightweight chasis, requiring a selection of efficient and lightweight motor, designing handles, balancing, selecting an energy-dense battery pack, adjusting wiring, ergonomics, etc. Ex2002, ¶73. Petitioners (Dyson) themselves spent 13 years between their first upright canister cyclonic vacuum and their first cyclonic handheld vacuum: Dyson’s DC01, first cyclonic upright vacuum, was released in 1993; and Dyson’s first handheld vacuum DC16 (which has a similar construction to the embodiments disclosed in Ex2003) was released in 2006, 13 years later. Ex2004. A process that took James Dyson and the Petitioners 13 years

to complete and one that has been praised by media as one of “the British design deity’s most brilliant brainchildren” is not a swappable project to be completed by a POSITA with a bachelor’s degree and two years of experience with an expectation of success. Ex2002, ¶74; *see also* Ex2004.

On top of that, to arrive at the claimed configuration, further rotating the cyclonic separator’s orientation from upright to horizontal is required. Petitioners failed to address the motivation or the expectation of success for this modification. In any event, it took Dyson another 12 years to make this change, with its release of the V10, Dyson’s first handheld vacuum with a horizontal in-line cyclone and a front openable door. *See* Ex2004. Again, this is not a swappable project to be completed by a POSITA with a bachelor’s degree and two years of experience with an expectation of success. Ex2002, ¶76; *see also* Ex2004.

Thus, POSITA would lack “a reasonable expectation of successfully achieving the claimed invention from the combination.” *Eli Lilly*, 8 F.4th at 1344.

C. Petitioners’ argument that moving the openable door to the front wall was obvious contradict their prior statements

Petitioners’ argument in Ground 3, as well as in the remaining Grounds, that a POSITA would have been motivated to place an openable door on the front wall and have a reasonable expectation of success run directly against their earlier writings regarding the same issue. As discussed above, it took Dyson 12 years between the launches of the DC16 and the V10 vacuums. And when the V10s were

marketed, Dyson highlighted its front door configuration as an innovative point, even devising a marketing term and calling it “point and shoot emptying.” EX2005. Petitioners up to today still advertise this feature on their website:



'Point and shoot' hygienic bin emptying

The 'point and shoot' mechanism hygienically ejects dust and debris deep into your bin, in one action – so there's no need to touch the dirt.

<https://www.dyson.com/vacuum-cleaners/cordless/v10/shop-all> (last accessed Dec. 9, 2024).

In fact, Petitioners were so proud of this feature that they filed a patent application covering this feature, although at a later priority date (Sept. 17, 2015) than the '407 Patent here. U.S. Patent No. 10,433,687. As the Patent Owner in IPR2023-01322 challenging the claims of U.S. Patent No. 10,433,687, Dyson summarized the invention of their patent such: a handheld vacuum cleaner with a cyclonic separator that has a *bottom* door has a “drawback” 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,” and Ex2007, 4-5, citing Ex2006, 1:29-33. And the solution that Dyson thought to be inventive was to place the door to the dirt collection area at the front end, so that the dust emptying process is ergonomic and hygienic. EX2007, 4-6, citing EX2006, 1:38–59, 5:61–6:11. Indeed, it was an amendment that added the element “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” (reading onto an openable door on the front end) to the pending claims that finally caused the claims to be allowed by the Office. EX2007, 22.

Petitioners now argue that it would have been an obvious modification for a POSITA to have an openable door on the front wall as the claims of the '407 Patent require. It is completely contradictory to what the Petitioners have presented to the Office during the prosecution of Patent No. 10,433,687 and during the related *Inter Partes* Review proceeding IPR2023-01322. Therefore, this argument of Petitioners, along with the supporting declaration, should be rejected.

D. IPVG and Conrad335 Fail to Teach All Elements of the Claims

Petitioners bear a burden to prove that all claimed limitations are disclosed in the proposed Ground. *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1194 (Fed. Cir. 2014); *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1164 (Fed. Cir. 2006) (motivation to combine and reasonable expectation of success met only “if all

the elements of an invention are found in a combination of prior art references”); *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1366-67 (Fed. Cir. 2016) (reversing Board’s finding of obviousness where “there is nothing in the record to support the Board’s conclusion that supplying the missing limitation would be obvious to one of skill in the art”).

The Petitioners’ Ground 3 references still fail to disclose elements of the Challenged Claims because those elements are *missing from the asserted prior art references in the Proposed Grounds*. Ex2002, ¶¶76–86. The Petitioners’ proposed “combination” is in effect the product of incorporating Conrad335’s cyclone separator and making a significant modification on top of the combination, *i.e.*, rotating it by 90 degrees to make the bottom door on the “front” wall.

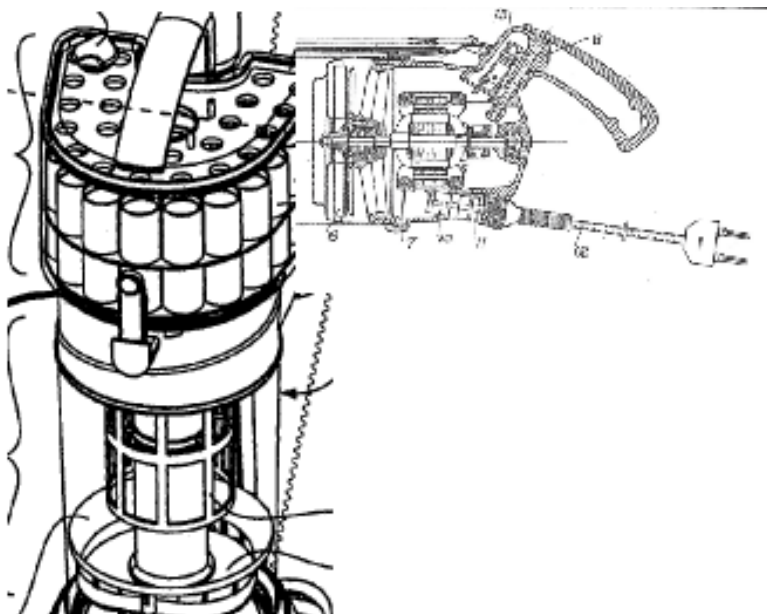
- 1. “the dirt collection chamber having an openable door, the front wall comprising the openable door” [1d],[23d],[24d],[25d]**

Neither IPVG nor Conrad335 disclose “the dirt collection chamber having an openable door, the front wall comprising the openable door” as required by claims 1–25. Ex2002, ¶¶79–83.

Petitioners assert that IPVG “teaches the dirt collection chamber having an openable door, the front wall comprising the openable door” because a “POSA would have understood IPVG’s ‘screwed cover 2’ is a front wall comprising an openable door.” Pet., 44. But IPVG does not teach a dirt collection chamber having

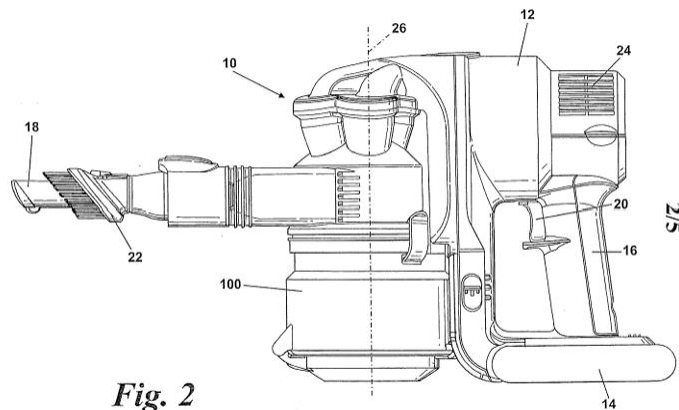
an openable door on a front wall. Contrary to Petitioners' unsubstantiated assertions, a POSITA having read IPVG would have understood that the disclosed "screwed cover 2" must be unscrewed in order to be removed. A POSITA would not consider this an openable door. A removable cover that does not pivot or swing or slide is not an "openable door." Ex2002, ¶80.

Conrad335 discloses a cyclone unit with a bottom door; it does not disclose such an openable door **on the front end**. Petitioners makes a significant modification to Conrad335's disclosure without explanation in the proposed combination, i.e., **turning it by 90 degrees**. As discussed above, even if a POSITA were to incorporate a cyclonic separator according to Conrad335, the POSITA would have incorporated it into IPVG as disclosed: in a generally upright configuration. Ex2002, ¶¶81–82.



Ex1005 Fig. 1 and Ex1006 Fig.2 (excerpted and combined, showing a combination configuration that a skilled artisan would arrive at).

A POSITA having read Conrad335 would have understood that the disclosure of Conrad335 is directed to “a plate positioned intermediate the opposed ends (the top end and the bottom end) of the casing of a cyclone separator” which is in a generally upright orientation, and that plate “divide[s] the interior of the cyclone casing into an upper cyclone chamber and a lower dirt collection area or chamber positioned beneath the upper cyclone chamber.” Ex1005, ¶4; Ex2002, ¶82. Incorporating this into IPVG to replace IPVG’s dust bag, at most, would result in something that Dyson’s PCT Publication WO2008/009890 discloses, which is admitted as background prior art in the Introduction section of the ’407 Patent. Ex2002, ¶82.



Ex2003, Fig. 2.

As discussed further above, Petitioners also failed to demonstrate how a POSITA would have been motivated to make this non trivial change of a 90 degree rotation and expect success.

2. “wherein the door is openable when the dirt collection chamber is mounted to the hand vacuum cleaner” [23f]

For the same reasons discussed above for element [1b], IPVG does not disclose an openable door. Its “screwed cover 2” is not an openable door. The Petition claimed that the screwed cover is openable, but as a POSITA would have understood it, it must be unscrewed to be removed, which is not “openable” as the claim requires and thus not an openable door. Pet., 46–47; Ex2002, ¶85. Alternatively, the Petition proposed to replace IPVG’s “screwed cover 2” with Conrad335’s bottom door. Pet., 47. As discussed above, this is a different kind of combination and modification than what the Petition proposed for the rest of Claim 23, i.e., incorporating a cyclonic separator from Conrad335 and rotating it by 90 degrees. Simply substituting the screwed cover of IPVG with the door of Conrad335 creates a combination that does not have a cyclone (therefore failing at least element [23c]). .

Therefore, the Petition failed to show that this limitation of Claim 23 is taught by Ground 3.

3. Claims 2–22

Because IPVG in view of Conrad335 fails to render obvious claim 1 of the '407 Patent, the IPVG and Conrad335 combination necessarily fails to teach dependent claims 2–22, which depend on claim 1.

V. GROUND 1: MARTELLIERE DOES NOT ANTICIPATE CHALLENGED INDEPENDENT CLAIMS 23–24

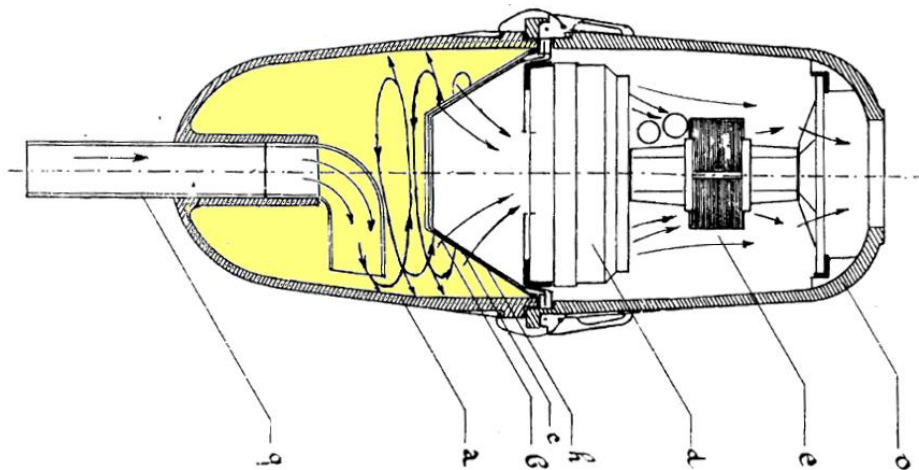
A. Martelliere Does Not Disclose the Claimed “Openable Door, the Front Wall Comprising the Openable Door” [23d]/[24d]

As the Institution Decision recognizes, Martelliere fails to anticipate claims 23 and 24. ID, 19–20. Petitioners identify the entirety of “container *a*” in Martelliere as “an openable door.” Pet., 16–17. This is not how a POSITA would interpret either Martelliere or the claimed “openable door.” Ex2002, ¶¶36–38. Contrary to Petitioners’ arguments, Martelliere does not disclose an “openable door,” let alone one on a “front wall.”

Martelliere seeks to improve on disadvantages of using “dust bags” for collecting dust and debris for a cyclonic separation device, including “difficulty” in emptying dust bags. Ex1010, 1. Ex2002, ¶39. Martelliere’s alleged improvement is to replace the dust bags of the prior art with a container made of “smooth and transparent material.” *Id.* Martelliere explains that its application of “Whirlwind” or cyclonic separation results in dirt being “deposited in the bottom of the container, after having separated from the air” and that this dirt can be emptied from the

container with ease due to the smooth internal surface of the container. Ex1010, 1. Ex2002, ¶39.

Because the dirt collects on the bottom of the container, Martelliére states that the “container” (*a* in the figure, shaded in yellow) “is very easily detachable” for emptying. Ex1010, 1; Ex2002, ¶40. At most, this suggests to a POSITA that the entire container can be detached and removed for emptying. Ex1010, 1; Ex2002, ¶40. Nowhere does Martelliére describe its container as a “door,” let alone explain how it is an “openable door” on a “front wall.” Indeed, a container that is entirely removed (*i.e.*, does not swing or slide) is not a “door” as that term would be understood from the context of the ’407 Patent. Ex2002, ¶40.



Id., 2 (with container *a* annotated in yellow).

Lacking any disclosure in Martelliére (which is a mere nine paragraphs long) of how an entire dust collection chamber is a “door,” Petitioners turn to their expert to speculate on the operation of the device in Martelliére. Petitioners, through their

expert, claim without support or citation that container *a* in Martellier is “pivotable” and that unlatching one latch allows the “‘container’ to pivot open.” Pet., 16. This argument is entirely speculative and a POSITA would not have understood that this element is disclosed in Martelliere. Ex2002, ¶41. Martelliere makes no mention of its container *a* being pivotable, and there is no evidence that opening just one of the latches will result in container *a* pivoting. For example, there may be more than two latches or the unopened latch may not be secure enough to allow container *a* to pivot about it. Ex2002, ¶41. Petitioners present no evidence that undoing one latch and attempting to rotate the container about a secured latch would not break the secured latch.

Furthermore, even if the entire dust collection chamber were to pivot, that does not necessarily make the chamber a door. In the Challenged Claims, the “openable door” is a door to the dust collection chamber. Under Petitioners’ interpretation, however, the dust collection chamber is an “openable door” to itself, which makes no sense in the context of the Challenged Claims. Ex2002, ¶42.

At bottom, Petitioners’ speculation is insufficient to teach that the “the dirt collection chamber” of Martelliere has a door, that the door is “openable,” or that the “front wall” of the Martelliere vacuum comprises the openable door.

B. Martelliere Does Not Disclose that a “Door Is Openable When the Dirt Collection Chamber Is Mounted to the Hand Vacuum Cleaner” [23f]

With respect to independent claim 23, Petitioners appear to identify Martelliere’s container *a* as both the dirt collection chamber and the claimed “front wall” of the front end. See Pet., 13–17. With respect to element [23f], Petitioners appear to argue instead that it is somehow possible for Martelliere’s container *a* to at once pivot open and remain mounted to metal frame *f* “through the other latch.” Pet., 17.

Assuming, for the sake of argument, that Petitioners mean to assert that the entirety of container *a* can pivot around one latch while disconnected from a second latch, container *a* would no longer be “mounted” to metal frame *f* of Martelliere and such operation is neither discussed nor contemplated by Martelliere. In other words, claim 23 specifies that “the door is openable when the dirt collection chamber is mounted to the hand vacuum cleaner.” Under Petitioners’ theory, the claimed “door” and “dirt collection chamber” are the same component—namely, container *a* of Martelliere. But it makes no sense—and Martelliere does not explain how it is possible—for container *a* to be simultaneously “mounted” (by one latch) to the metal frame and “openable.” Ex2002, ¶45. *Topliff v. Topliff*, 145 U.S. 156, 161 (1892) (“It is not sufficient to constitute an anticipation that the device relied upon might, by modification, be made to accomplish the function performed by the patent in

question, if it were not designed by its maker, nor adapted, nor actually used, for the performance of such functions.”).

C. Martelliere Does Not Disclose that an “Openable Door Covers an End of the Dirt Collection Chamber” [24f]

With respect to independent claim 24, Petitioners state, without support or explanation, that “Martelliere’s ‘container’ ‘wall’ (the openable door) covers the front end of ‘container a’ (the dirt collection chamber).” Pet., 17. Petitioners have neither explained how what they have identified as Martelliere’s “container wall” differs from Martelliere’s container *a*, nor established how something can be argued to “cover[] the front end of” itself. Ex2002, ¶47.

Thus, Petitioners have not met their burden of showing that any of the Challenged Claims are anticipated by Martelliere under Ground 1.

VI. GROUND 4: MARTELLIERE IN VIEW OF IPVGG DOES NOT RENDER OBVIOUS CHALLENGED INDEPENDENT CLAIMS 23–24

A. Petitioners Do Not Address Each Element of Challenged Claims 23–24

Ground 4 only addresses elements [23pre]/[24pre] and [23d]/[24d]/[23f]. Pet., 73–77. Nowhere does Ground 4 purport to address or cite to any discussion of the remaining elements of the Challenged Claims 23–24, including by reference to earlier portions of its Petition as the Institution Decision recognized. ID, 21. Petitioners’ citation to the cursory discussion in Dr. Giachetti’s declaration of the alleged motivations to combine IPVGG and Martelliere and of elements

[23pre]/[24pre] and [23d]/[24d]/[23f] fails to cure this glaring and fatal deficiency. This is critical with respect to an obviousness theory because it is not clear to Patent Owner which references Petitioners rely on for each limitation.

Furthermore, nothing in the proposed combination of Martelliere and IPVG cures the issues described above with respect to neither reference disclosing an “openable door, the front wall comprising the openable door”—*i.e.*, neither reference discloses a pivotally or swingably mounted door. Ex2002, ¶89. Thus, for the same reasons as explained with respect to Grounds 1 and 3, Ground 4 fails.

Thus, Petitioners have not shown that the IPVG and Conrad335 combination renders Challenged Independent Claims 23–24 obvious.

B. Petitioners Failed to Show That a POSITA Would Have Been Motivated to Combine Martelliere and IPVG

Petitioners argue that “[a] POSA reading IPVG—including its teaching that a ‘dust bag or like member through which the air stream passes’ may be used as an air-filtration unit (Ex1006, 1:22-33)—would have been motivated to incorporate Martelliere’s teachings . . . for its many known advantages.” Pet., 74. In Ground 4, however, Petitioners’ alleged motivations to combine all relate to using IPVG’s stick vacuum with Martelliere’s cyclonic separation mechanism. Furthermore, Petitioners provide only conclusory statements about simple substitution and alleged advantages of modifying IPVG based on Martelliere’s disclosure without providing any explanation for such conclusory statements.

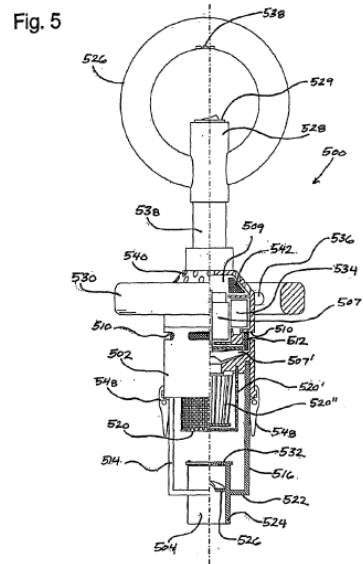
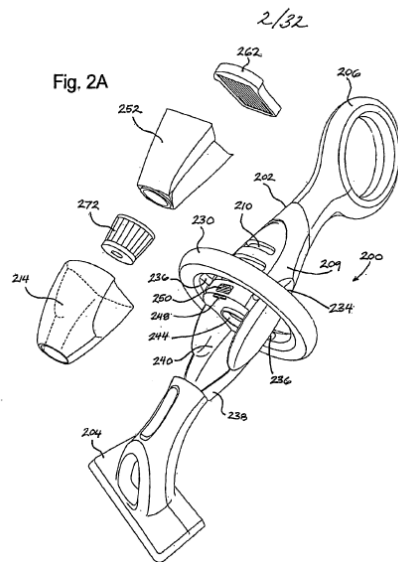
To the contrary, a POSITA would find no teaching in either IPVG or Martelliere motivating the POSITA to make the combination. Ex2002, ¶91. Petitioners and their expert solely depend on a generalized idea of replacing IPVG's dirt bag with Martelliere's whirlwind, but fail to describe anywhere how this combination is specifically to be made or how the combined system meets the Challenged Claims. Pet., 73-76. Ex2002, ¶¶90–91. Thus, Petitioners failed to meet their burden of showing that a POSITA would have been motivated to combine the art to result in Petitioners' proposed combination and Ground 4 fails for this additional reason. *Netflix, Inc.*, 84 F.4th at 1371; *Intelligent Bio-Sys.*, 821 F.3d at 1359.

VII. GROUND 2: BUTLER DOES NOT ANTICIPATE CHALLENGED INDEPENDENT CLAIMS 23–24

A. Petitioners Improperly Combine Butler's Separate and Distinct Embodiments

Each of Butler's Figs. 1, 2A–D, and 5 discusses a separate, independent embodiment of a stair vacuum cleaner (*i.e.*, there are at least six different embodiments associated with these figures alone). *See, e.g.*, Ex1020, 4:7–10 (“Figure 1 is a perspective view of *an embodiment* of a vacuum cleaner of the present invention. Figure 2A is a perspective view of *another embodiment* of a vacuum cleaner of the present invention . . .”), 4:11–16 (Fig. 2B is a “view of a dust bag configuration,” Fig. 2C is a “view of a dirt cup configuration,” and Fig. 2C is a “view

of a cyclone separator configuration”), 4:21–22 (“Figure 5 is a partial cut away side view of *still another embodiment* of a vacuum cleaner of the present invention.”); *see also id.*, 7:14–21, 15:19–20, 17:1–2, 17:15–16, 18:3–5, 20:3–4. Most relevant here, these separate embodiments have different dirt receptacles, and yet Petitioners rely on disclosure associated with these multiple, separate embodiments indiscriminately, without acknowledgement or explanation of how or why a POSITA would have considered such disclosure to be combined in an anticipation analysis. Pet., 18–24. The Board agreed in the Institution Decision. ID, 24–25. Instead, a POSITA would have readily recognized that these figures are directed to different embodiments of the vacuum body shapes. Ex2002, ¶50.



Compare id., 16:14–15 (“dirt receptacle 214 . . . is shaped and sized to be selectively positionable in the pocket 240”), *with id.*, 21:8–9 (“cylindrical dirt receptacle 514 is removably attached at a bottom end of the housing 502”).

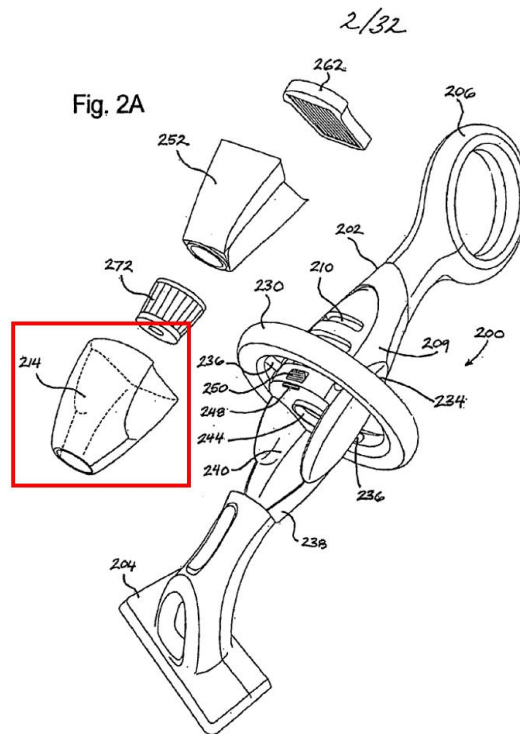
In particular, when discussing elements [23d]/[24d], Petitioners combine discussion of Butler’s Figure 2 embodiments with discussion of Butler’s Figure 5 embodiment. For example, in the very same sentence, Petitioners point to the alleged “chamber emptying” feature of “dirt receptacle 214,” which is a component of the Figure 2A embodiment, and the alleged “removab[ility]” of “bottom wall 522,” which is a component of the Figure 5 embodiment. As separate embodiments, it is improper for Petitioners to combine them as a basis for anticipation. *Microsoft Corporation v. Biscotti, Inc.*, 878 F.3d 1052, 1071–73 (Fed. Cir. 2017) (affirming determination that combining separate embodiments within a single reference to account for the limitations of the claim was an improper basis for anticipation).

B. No Embodiment in Butler Discloses the Claimed “Openable Door, the Front Wall Comprising the Openable Door” [23d]/[24d]

Setting aside Petitioners improper amalgamation of embodiments, neither the Figure 2 embodiments nor the Figure 5 embodiment disclose the claimed “openable door, the front wall comprising the openable door.” Ex2002, ¶¶53–57.

In the Figure 2 embodiments, the vacuum cleaner includes “dirt receptacle 214” (in red below). Ex1020, 16:14–15. Petitioners quote disclosure from Butler that “‘dirt receptacle 214 may be covered by an access panel or door’ to ‘facilitate the chamber’s emptying.’” Pet., 22 (quoting Ex1020, 18:26–30). Nowhere does Butler suggest, let alone disclose, that a *front wall* of the dirt receptacle would comprise such a door. Moreover, the disclosure regarding a “door” to “facilitate the

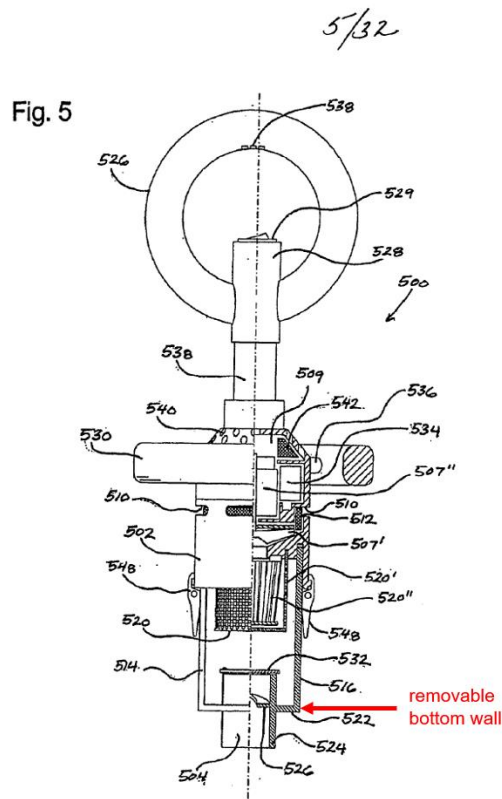
chamber's emptying" relates to an embodiment in which "dirt receptacle 214" is "omitted and replaced by a non-removable chamber within the housing." Ex1020, 18:27–28. In that instance, there could not be a "door" on the front wall of the chamber because the chamber would be connected to the air inlet passage coming from inlet nozzle 204.



Id., Fig. 2A (annotated). Ex2002, ¶55.

The Figure 5 embodiment likewise does not disclose the claimed "openable door, the front wall comprising the openable door." Petitioners point to "bottom wall 522" in Butler, which Butler states is "removably attached to the sidewalls 516 by threaded engagement, bayonet fittings, clamps, screws, or the like." Ex1020, 21:19–23. Petitioners quote Butler that "bottom wall 522" is "removable from the

device,” Pet., 22, but for the reasons explained above, simply being “removable” does not make bottom wall 522 a “door,” as the Institution Decision also recognized. ID, 25. As explained above, a POSITA would have understood that a “door” swings or slides to open; a door in the context of the ’407 Patent is not something that must be entirely removed to open. Ex2002, ¶56; Ex2001. Petitioners never argue that bottom wall 522 is pivotable or slidable (as opposed to completely removable). Because it is fully removable, and not a swinging or sliding barrier, bottom wall 522 cannot be the claimed “openable door.” Ex2002, ¶57.



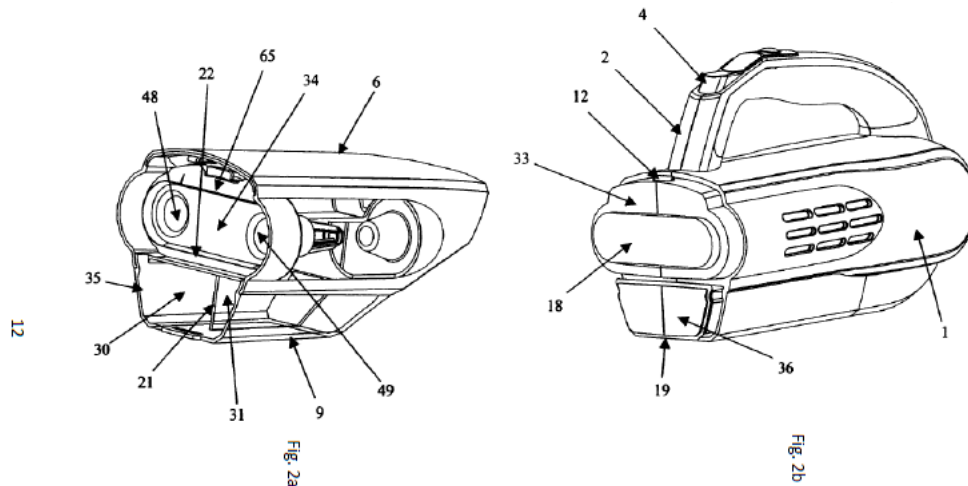
Id., Fig. 5 (annotated).

Thus, because no embodiment in Butler raised by Petitioners discloses the claimed “openable door,” Butler cannot anticipate independent claims 23 and 24.

VIII. GROUND 5: JIANAN IN VIEW OF KHALIL DOES NOT RENDER OBVIOUS CHALLENGED CLAIMS 1–25

A. Petitioners Failed to Show That a POSITA Would Have Been Motivated to Combine Jianan and Khalil

Petitioners’ Ground 5 fails from the start because Petitioners have not sufficiently demonstrated a motivation to combine Jianan and Khalil. Rather, Petitioners provide conclusory statements about simple substitution and alleged advantages of modifying Jianan based on Khalil’s disclosure without providing any explanation for such conclusory statements. For example, Petitioners claim that “Jianan does not specify further implementation details for its dust-collection chamber’s ‘moveable door’” and a “POSA would have substituted Khalil’s detailed dirt-cup door teachings of using an end-wall as a door, including its hinged door-opening mechanism.” Pet., 78, 80–81. Petitioners do not explain why a POSITA would have looked to Khalil’s disclosure of a *rearward* opening dirt cup door to inform the design and placement of an “opening and closing device such as a door” of Jianan’s removable dust collection chamber.



Ex1013, cl. 3, Figs. 2a, 2b.

Although Jianan contemplates that “[a]nother opening device that replaces the dust collection chamber opening 35 can be a moveable door on the dust collection chamber 9,” *id.*, 10, Jianan provides no details or disclosure of where the door would be placed or how the door would be implemented. Ex2002, ¶94. If anything, because Jianan explains that dust collection chamber 9 is emptied through opening 35 in the rear, Ex1013, 10, an “openable door” in Jianan would be placed at the rear of dust collection chamber 9. Ex2002, ¶95. Petitioners present Jianan’s silence as its primary motivation to modify Jianan based on the disclosure of Khalil. Petitioners argue that “[a] POSA would have looked to references teaching implementation details for moveable doors on dust collection chambers in handvacs to enable Jianan’s goal of providing a ‘clean and convenient dust removal process,’” and that “Khalil is one such reference.” Pet., 80. This is not how a POSITA would have understood Jianan. Ex2002, ¶¶96–97. But even if this silence was a reason to select

a door mechanism from the prior art or common knowledge, Petitioners failed to provide a reason why a POSITA would select Khalil's implementation (using a hinge and the entire rear end-wall), rather than any other known mechanisms and/or placements to use in Jianan's vacuum.

Furthermore, Petitioners do not explain why Khalil's rear-wall openable door would be moved to a "front wall" of Jianan (as opposed to a rear, side or bottom wall). In fact, as noted above, Jianan teaches that the dust collection chamber is emptied through "dust collection chamber opening 35," which is in the *rear* of Jianan's dust collection chamber and faces towards the *rear* of Jianan's vacuum. Ex2002, ¶97. Ex1013, 10, Fig. 2a. Thus, even if modifying Jianan in view of Khalil, a POSITA would have included a pivoting door on the rear of Jianan's dust collection chamber. Ex2002, ¶97. Nothing in either Jianan or Khalil suggests placing an openable door on the front of the dust collection chamber. Thus, it is clear that hindsight alone drove Petitioners' proposed combination of Jianan and Khalil for Ground 5.

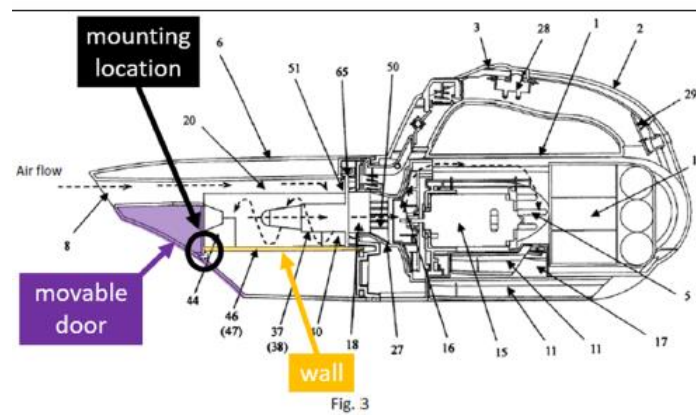
To support the alleged rationales for combining Khalil's disclosure with Jianan's vacuum, Petitioners cite the Declaration of Dr. Giachetti (Ex1002). However, these paragraphs also merely make conclusory statements about simple substitution and alleged advantages without providing any explanation for such conclusory statements. *E.g.*, Ex1002, ¶¶320–23.

Taken together, it is apparent that Petitioners' proposed combined vacuum constitutes an improper "hindsight reconstruction" using "the patent in suit as a guide" to "combine the right references in the right way" to "achieve the result of the claims." See *Grain Processing*, 840 F.2d at 907 (internal citation omitted). Guided by the Challenged Claims, Petitioners cherry-picked **a rear pivotable door** to the dust collection cup from Khalil; guided by the Challenged Claims, Petitioners moved the rear door to the sidewall of the dust collection cup according to Jianan; guided by the Challenged Claims, Petitioners extends the door further to open up to the cyclone chamber.

Further proving that this entire mental-gymnastics exercise is guided by hindsight, Petitioners created a technical challenge that did not exist in the original Jianan reference and purportedly fixed this self-inflicted problem. Petitioners claim that, without extending the modified door to cover both the dirt collection chamber and the cyclone chamber, fibrous materials may wrap around the conical cyclone filters and must be pulled out manually. Pet., 86. But this challenge **did not exist** in Jianan to begin with. Jianan discloses a dust cup 6 which is part of the body that covers the entirety of both the cyclone chamber and the dirt collection chamber. Ex1013, Figs 1 and 3; Ex2002, ¶98. A POSITA would have understood that when emptying the dirt collection chamber, the dust cup 6 is removed, and any fibrous materials can be removed from the filters. This supposed issue of fibrous material

is only introduced by Petitioners' hindsight-guided modification of introducing a door to the sidewall of the dirt collection chamber. Ex2002, ¶98. In fact, this is one of the reasons why a POSITA would not have modified Jianan to begin with. Ex2002, ¶98.

Furthermore, Petitioners' proposed combination of Jianan and Khalil has a door that is unopenable, non-pivotable, and therefore inoperable. With respect to claim 6, Petitioners stated that the wall between the cyclone chamber and the dirt collection chamber according to Jianan should be mounted to the proposed "movable door" at the mounting location annotated:



Pet., 95; Ex1013, Fig. 3 (annotated by the Petition). But this configuration, proposed by the Petitioners in order to read onto claim 6, is completely inoperable, as the long wall blocks any pivoted opening of the door. Ex2002, ¶¶99. “If references taken in combination would produce a ‘seemingly inoperative device,’ we have held that such references teach away from the combination and thus cannot serve as predicates

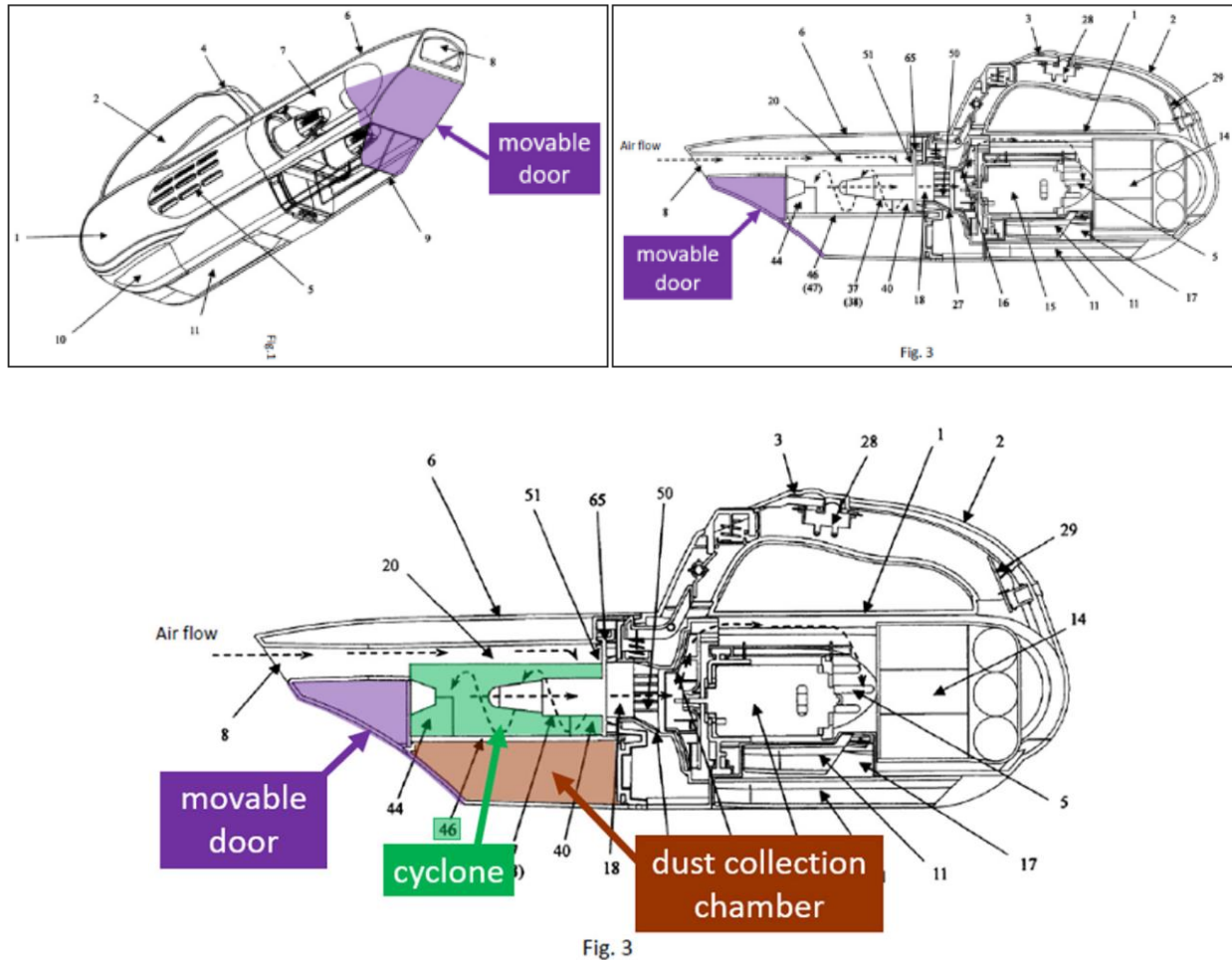
for a prima facie case of obviousness.” *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1354 (Fed. Cir. 2001) (internal citations omitted).

Thus, Petitioners have not met their burden of showing that the Challenged Claims were obvious in view of Jianan in combination with Khalil under Ground 5, and the Petition should be denied.

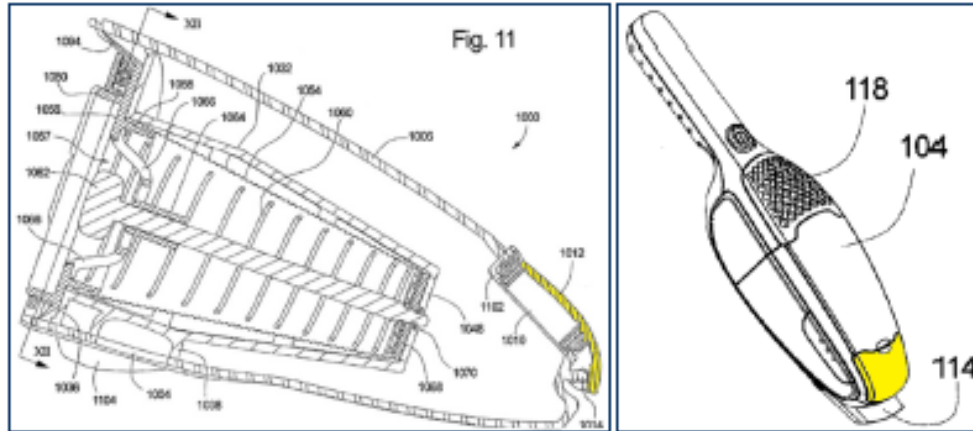
B. The Jianan and Khalil Combination Does Not Render Obvious the Claimed “Openable Door, the Front Wall Comprising the Openable Door” [1d]/[23d]/[24d]/[25d]/[23f]/[24f]

For each of independent claims 1, 23, 24, and 25, Petitioners allege that they would have been obvious over Jianan in view of Khalil. But Petitioners have failed to show that either of Jianan or Khalil or the purported combination would disclose a “front wall comprising [an] openable door,” as required by all independent claims.

As explained above, Jianan describes a “handheld vacuum” with a “detachable dust cup” “connected to the cyclone body through the dust release hole.” Ex1013, Abstract. Petitioners state that Jianan contemplates a “moveable door on the dust collection chamber,” *id.*, 10, but nowhere does Jianan state where on the dust collection chamber the moveable door is located. Ex2002, ¶102. Indeed, when Petitioners attempt to identify where the “moveable door” would be positioned, it points to portions of the *sidewall* of the main body of Jianan’s vacuum, as shown below in purple, not a “front wall.”

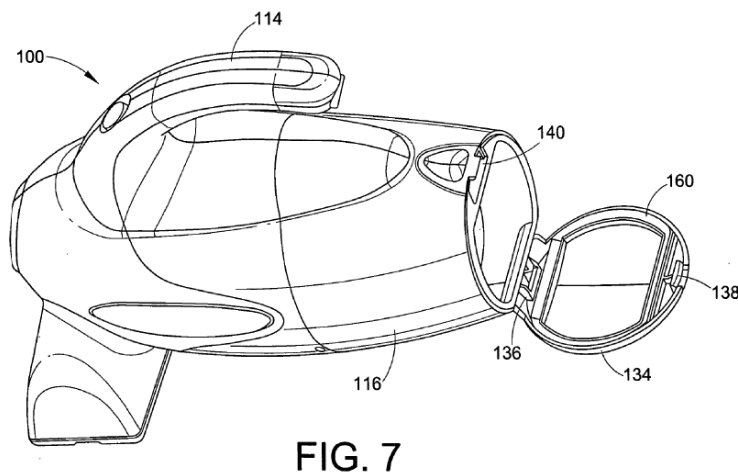


Pet., 81, 86 (as annotated in the Petition). This location is no different than that of Beskow (U.S. Publication No. 2008/0040883), discussed above, which Applicant successfully distinguished during prosecution as having a door on a “sidewall of the dirt collection chamber.” Ex1004, 169–72, 217. Thus, even Petitioners’ interpretation of Jianan does not disclose an “openable door” on a “front wall” of the vacuum cleaner. Ex2002, ¶103.



Ex1015, Figs. 1B, 11 (annotated).

Petitioners also make the conclusory statement that “[a] POSA would have been motivated to implement Jinan’s [sic] moveable-door teachings using Khalil’s dirt-cup-door teachings and would have reasonably expected success.” Pet., 88. But, as shown below, Khalil discloses a detachable “dirt cup” and “dirt cup door” located at the *rear* of the vacuum. Ex1014, Abstract.



Id., Fig. 7. Khalil’s disclosure of an openable door at the rear of a vacuum cleaner cannot cure the lack of disclosure in Jianan for an “openable door” on a “front wall.” Ex2002, ¶104.

Thus, Petitioners have not shown that the Jianan and Khalil combination discloses or renders obvious an “openable door” on a “front wall” as recited by the Challenged Claims and Ground 5 fails.

C. The Jianan and Khalil Combination Does Not Render Obvious Challenged Dependent Claims 2–22

Because Jianan in view of Khalil fails to render obvious claim 1 of the ’407 Patent, the Jianan and Khalil combination necessarily fails to teach dependent claims 2–22, which depend on claim 1. Ex2002, ¶105

Further, specifically, with respect to Claim 9, Petitioners alleged that a skilled artisan would have understood Khalil’s “hinge” is secured to the handvac by a removable screw or pin, at least because Khalil appears to depict one in the center of Khalil’s “hinge.” Pet., 99. This is completely inventing a teaching that does not exist in either Khalil or Jianan. Ex2002, ¶106. Neither Khalil nor Jianan suggests or discloses a removable door or removable door hinge, nor can Petitioners cite to any portion of any references. The only support for this proposed modification of making the hinge removable, which is apparently guided by nothing but the claim itself, was Dr. Giachetti’s naked assertion that the hinge of Khalil could be removed. Pet., 99; Ex1002, ¶106.

Further, with respect to claim 12, Petitioners alleged that a skilled artisan would have been motivated to “seal” Jianan’s dust collection opening. Pet., 101-102. This is completely inventing a teaching that does not exist in either Khalil or Jianan. Ex2002, ¶108. Neither Khalil nor Jianan suggests or discloses a dirt collection chamber as a sealed unit, nor can Petitioners cite to any portion of any references. Only support for this proposed modification of making the dirt collection chamber a sealed unit, which is apparently guided by nothing but the claim itself, was Dr. Giachetti’s naked assertion that the dirt collection chamber may be seal. Pet., 101-102; Ex1002, ¶109.

As such, Petitioners failed to demonstrate a reasonable likelihood of success on any claim in Ground 5.

IX. CONCLUSION

For the foregoing reasons, Patent Owner respectfully requests that the Board reject Petitioners’ patentability challenges to Challenged Claims.

Date: December 11, 2024

Respectfully submitted,

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CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

Under the provisions of 37 C.F.R. § 42.24(d), the undersigned attorney hereby certifies that this document complies with the type-volume limitations of 37 C.F.R. § 42.24(b). The word count of the foregoing Patent Owner's Response is 9,278, according to the word count tool in Microsoft Word.

DATED: December 11, 2024

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CERTIFICATE OF SERVICE

The undersigned certifies service pursuant to 37 C.F.R. § 42.120 of a copy of this Patent Owner's Response and supporting materials upon Petitioners by email on December 11, 2024 to the following email addresses of record:

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