

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. IPR2024-00690
U.S. Patent No. 10,117,550

PATENT OWNER'S RESPONSE

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. THE PETITION.....	4
A. The Asserted Grounds.....	4
B. Claim Construction	4
C. Person of Ordinary Skill in the Art (“POSITA”).....	4
III. Overview of Asserted References	4
A. Butler.....	4
B. Peter.....	5
C. Jansen	6
D. Martelliere	7
E. Neroni.....	7
IV. Ground 3: Peter in View of Neroni Does Not Render Obvious Challenged Claims 1–28.....	8
A. Petitioners fail to show a motivation to modify Peter and Neroni to read onto limitations [1a.2],[20a.2],[28a.2] “a cyclone unit” and therefore failed to render these limitations obvious	9
B. Petitioners fail to show a motivation to modify Peter and Neroni to read onto limitations [1a.3], [12a.3], [20a.3, 20e], or [28a.3] regarding the “electrical connector” and “electrical cables” and therefore failed to render obvious these limitations	13
C. The Peter and Neroni combination does not render obvious Challenged Dependent Claims 2–11, 13–19, and 21–27.....	23

TABLE OF CONTENTS (*continued*)

	<u>Page</u>
V. Ground 4: Peter, Neroni, Martelliere, and/or Jansen Combination Does Not Render Obvious Challenged Claims 1–28	24
A. Petitioners do not address each element of the Challenged Claims 1–28	24
B. Petitioners have not shown that a POSITA would have been motivated to combine Peter, Neroni, Martelliere, and/or Jansen	25
VI. Ground 1: Butler Does Not Anticipate Challenged Claims 1–28	29
A. Butler does not disclose “an electrical connector provided on the front end of the cyclone unit” [1a.3]/[20a.3], “an electrical connector provided on the front end of the air treatment chamber” [12a.3], or “an electrical connector provided on the front ed of the cyclone unit at a location adjacent the hand vacuum cleaner air inlet” [28a.3]	29
B. Butler does not disclose “electrical cables extend rearwardly from the electrical connector through a central portion of the air treatment member toward the suction motor and fan assembly” [1a.3]/[12a.3]/[28a.3] or “electrical cables extend rearwardly frm the electrical connector through the cyclone unit adjacent the hand vacuum cleaner inlet passage towards the suction motor and fan assembly” [20e]	30
C. Butler does not anticipate Challenged Dependent Claims 2–11, 13–19, and 21–27	32
VII. Ground 2: Butler Does Not Render Obvious Challenged Claims 1–28.....	32
A. Butler does not render obvious “an electrical connector provided on the front end of the cyclone unit” [1a.3]/[20a.3], “an electrical connector provided on the front end of the air treatment chamber” [12a.3], or “an electrical connector provided on the font end of the cyclone unit at a location adjacent the hand vacuum cleaner air inlet” [28a.3]	34

TABLE OF CONTENTS (*continued*)

	<u>Page</u>
B. Butler does not render obvious “electrical cables extend rearwardly from the electrical connector through a central portion of the air treatment member toward the suction motor and fan assembly” [1a.3]/[12a.3]/[28a.3] or “electrical cables extend rearwardly from the electrical connector through the cyclone unit adjacent the hand vacuum cleaner inlet passage towards the suction motor and fan assembly” [20e].....	36
C. Butler does not render obvious Challenged Dependent Claims 2–11, 13–19, and 21–27	38
VIII. CONCLUSION.....	38

TABLE OF AUTHORITIES

	<u>Page(s)</u>
Cases	
<i>Arendi S.A.R.L. v. Apple Inc.</i> , 832 F.3d 1355 (Fed. Cir. 2016)	10, 13
<i>Innogenetics, N.V. v. Abbott Labs.</i> , 512 F.3d 1363 (Fed. Cir. 2008)	35
<i>Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.</i> , 821 F.3d 1359 (Fed. Cir. 2016)	4
<i>KSR Int’l Co. v. Teleflex Inc.</i> , 550 U.S. 398 (2007).....	2, 10, 24, 34
<i>In re Kubin</i> , 531 F.3d 1351 (Fed. Cir. 2009)	36, 38
<i>McGinley v. Franklin Sports, Inc.</i> , 262 F.3d 1339 (Fed. Cir. 2001)	29
<i>Medichem, S.A. v. Rolabo, S.L.</i> , 437 F.3d 1157 (Fed. Cir. 2006)	10
<i>Netflix, Inc. v. DivX, LLC</i> , 84 F.4th 1371 (Fed. Cir. 2023)	4
<i>In re O’Farrell</i> , 853 F.2d 894 (Fed. Cir. 1988)	36
<i>PAR Pharm., Inc. v. TWI Pharms., Inc.</i> , 773 F.3d 1186 (Fed. Cir. 2014)	10
<i>Takeda Chem. Indus., Ltd. v. Alphapharm Pty., Ltd.</i> , 492 F.3d 1350 (Fed. Cir. 2007)	2, 10
Statutes	
35 U.S.C. § 312(a)(3).....	4

TABLE OF ABBREVIATIONS

Abbreviation	Description
'550 patent	U.S. Patent No. 10,117,550 (Ex1001)
Butler	PCT Publication No. 2007/084543 to Butler et al.
Challenged Claims	Claims 1–28 of U.S. Patent No. 10,117,550
Fig.	Figure
IPR	<i>inter partes</i> review
Jansen	U.S. Patent Publication No. 2008/0189901 to Jansen
Martelliere	French Patent No. 1,094,603 to Martelliere
Neroni	U.S. Patent No. 4,473,923 to Neroni et al.
Patent Owner	Omachron Intellectual Property Inc.
Peter	Swiss Patent No. CH203,675 to Peter
Petitioners	Dyson Technology Limited and Dyson, Inc.
POSITA	person[s] of ordinary skill in the art
ID	September 18, 2024 Institution Decision, IPR2024-00690, Paper 8

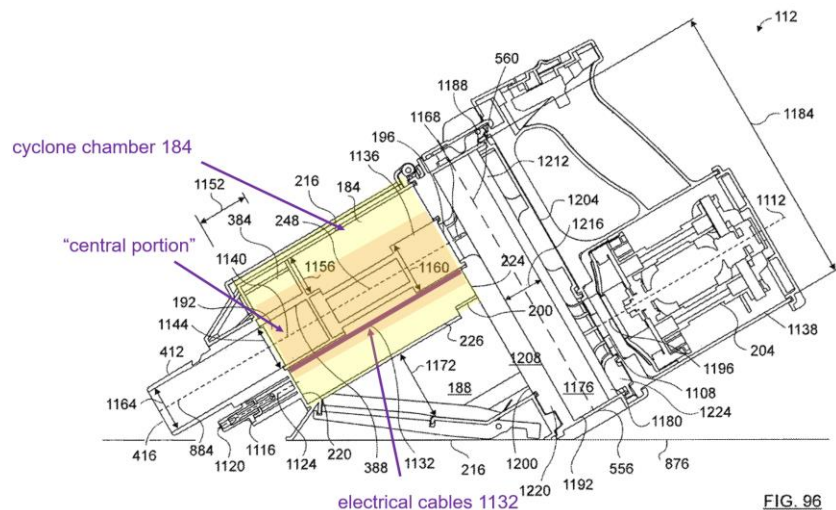
EXHIBIT LIST

Exhibit Number	Description
Ex2001	Declaration of Dr. Richard Figliola In Support of Patent Owner's Response
Ex2002	Comparison of Filter Bag, Cyclonic, and Wet Dust Collection Methods in Vacuum Cleaners, AIHAJ (62) (September/October 2001)
Ex2003	Linden, Investigations into Cyclone Dust Collectors, Proceedings of the Institution of Mechanical Engineers (1949)
Ex2004	Experimental Study of Particle Collection by Small Cyclones, Aerosol Science and Technology (1990)
Ex2005	Nov. 26, 2024 Deposition Transcript of Dr. Robert Giachetti

I. INTRODUCTION

Omachron Intellectual Property Inc. files this Patent Owner's Response in response to Dyson Technology Limited and Dyson, Inc.'s ("Petitioners") Petition for *Inter Partes* Review of U.S. Patent No. 10,117,550.

The '550 Patent discloses and claims novel designs for extending an electrical connector through a central portion of a cyclone unit between a front end of the cyclone and a suction motor and fan assembly at the rear. Ex1001, Abstract. For example, the '550 Patent improves the prior art by providing an electrical connection between "an upstream attachment (e.g. a surface cleaning head)" and a "source of power." *Id.*, 34:39–58. For example, in one embodiment, "one or more electrical cables 1132 . . . extend from electrical connector 1116 along vortex finder 1136 of cyclone chamber 184 toward motor housing 1138"—i.e., through a "central portion" of the cyclone unit. *Id.* This configuration is illustrated below in an annotated version of Figure 96 of the '550 Patent.



Id., Fig. 96 (annotated).

As an example, according to claim 1 of the '550 Patent, the “electrical cables extend rearwardly from the electrical connector through a central portion of the air treatment member toward the suction motor and fan assembly.” None of the prior art references cited (as discussed below) discloses or teaches this feature, and any modifications to the reference Petitioners propose are only guided in hindsight by the Challenged Claims themselves.

The Institution Decision correctly found that the Petition failed to establish a likelihood of success on the two Grounds presented based on Butler. And, based on the additional evidence submitted with this Response, the Board should find that the Ground 3 and its subsidiary Ground 4 are also legally insufficient to show that the Challenged Claims are invalid.

Specifically, Petitioners bear the burden to prove that it would have been obvious at the time to add an electrified attachment to any vacuum cleaner and further to provide the electrical wiring through a central portion of the cyclonic *to arrive at the specific configuration* claimed by the '550 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). And Petitioners failed to meet this burden.

First, the references (either individually or combined) fail to disclose or teach all elements of the Challenged Claims. Petitioners' combination does not result in an electrical connector and electrical cables extending rearwardly as required by Challenged Claims 1–28.

Second, Petitioners failed to properly demonstrate 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 '550 Patent does. To create Petitioner's combined vacuums, Petitioners picked and chose from disparate prior art references and assembled and modified them *following the configuration that made the invention novel*. It is only by using the '550 Patent as a guide that Petitioners arrived at an imitation of the claims' design.

Critically, Petitioners identified *no teaching* in the art to modify the references (specifically, Butler and Peter) 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 '550 Patent is supplied only by Dr. Giachetti's naked testimony—no contemporaneous or prior reference is cited as ever suggesting an electrical connector and electrical cables extending rearwardly in the specific way claimed by the '550 patent. Rather, Petitioners rely solely on Dr. Giachetti's conclusory view that the claimed features at issue are obvious.

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 four “Asserted Grounds” for invalidity:

Ground	Basis and References	Claims
1	§ 102, Butler	1–28
2	§ 103, Butler	1–28
3	§ 103, Peter and Neroni	1–28
4	§ 103, Peter, Neroni, Martelliere, and/or Jansen	1–28

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”)

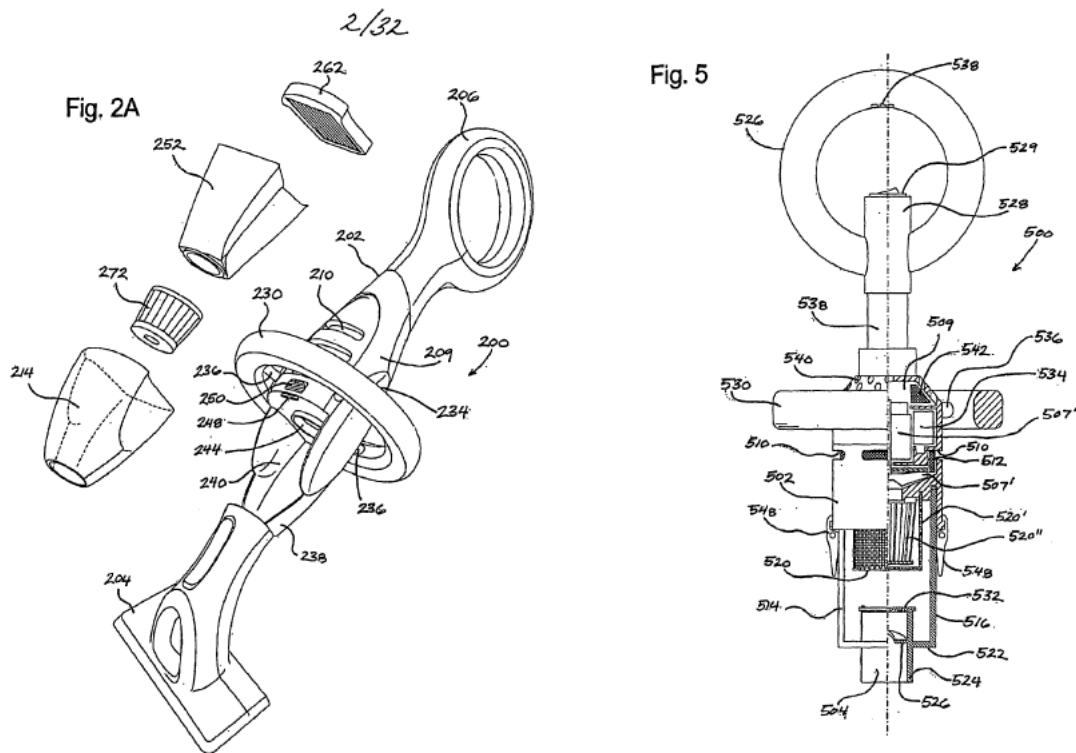
For the purposes of this POR, Patent Owner does not challenge Petitioner’s POSITA definition.

III. Overview of Asserted References

A. Butler

Butler is a 2007 PCT publication that details several distinct embodiments of a specialized “Stair Cleaning Vacuum.” Ex1005, Title. Butler discusses various existing solutions such as “upright and canister vacuum cleaners,” “stick vacuums,”

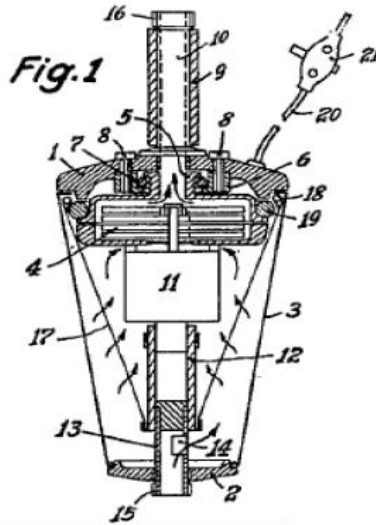
and “compact hand-held vacuums,” and concludes that there “exists a need for an improved vacuum cleaner” specifically adapted for cleaning “raised” surfaces, and “particularly stair treads and risers.” *Id.*, 1:5–24, 3:10–16. Two distinct embodiments from Butler—one associated with Figure 2A and the other with Figure 5—are shown below.



Id., Figs. 2A, 5.

B. Peter

Peter is a 1939 Swiss patent for a vacuum cleaner having “suction nozzles and suction brushes that can be connected to the vacuum cleaner housing both directly and with the interposition of tubular and articulated parts so that they can be rotated, individually exchanged and combined with one another.” Ex1007, 1.



Id., Fig. 1.

C. Jansen

Jansen is a 2008 U.S. patent application publication for an upright “bare floor cleaner” for “wet and dry bare floor surfaces.” Ex1008, Abstract.

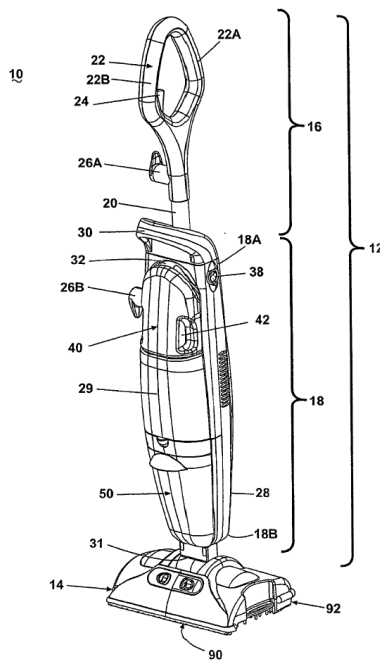
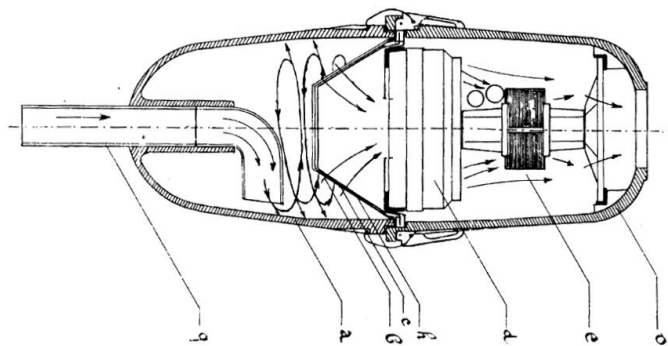


Fig. 1A

Id., Fig. 1A.

D. Martelliere

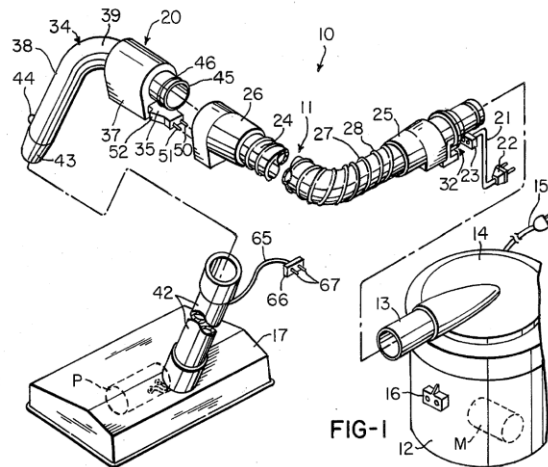
Martelliere is a 1955 French patent for an improvement to a “broom type vacuum cleaner model” that addresses the “recognized difficulty” of emptying dust bags by “replacing fabric [dust] bags” with a container made of “smooth and transparent material.” Ex1010, 1. This transparency allows a user to see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

E. Neroni

Neroni is a 1984 U.S. patent for a “Vacuum Cleaning Tool Adapter with Electrical Control Means.” Ex1011, Title. Neroni describes a “cainster or tank type” of vacuum cleaner with a “hose assembly [that] is attached to the tank at one end” and attached to “a powered cleaning tool” at the other end. *Id.*, 1:6–17. Neroni describes a “female power receptacle 16 disposed on the outside surface of its tank 12” that is used to “supply electrical power through the hose assembly 11 into the adapter 20, and then to motor P of the power cleaning tool 17.” *Id.*, 3:34–49.



Id., Fig. 1.

IV. Ground 3: Peter in View of Neroni Does Not Render Obvious Challenged Claims 1–28

Petitioners failed to demonstrate that the proposed combination of Peter and Neroni renders obvious claims 1–28, and Petitioners failed to demonstrate motivation to combine as they proposed. Petitioners bear the burden to prove that it would have been obvious at the time to add an electrified attachment to any vacuum cleaner in *the specific configuration* claimed by the '550 Patent. *KSR*, 550 U.S. at 418; *see also Takeda Chem. Indus., Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1356–57 (Fed. Cir. 2007). Petitioners therefore have the burden to prove that it would have been obvious to provide the specific configurations recited in the '550 patent claims. And Petitioners have failed to meet this burden.

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”).

As discussed below, Petitioners specifically failed to prove that it would have been obvious to (1) combine the teachings of Peter and Neroni *and further modify it to include a cyclone in the specific configuration* as recited in the ’550 Patent claims, which is not taught in any references cited; and failed to prove that it would have been obvious to (2) combine the teachings of Peter and Neroni *and further arrange* the electrical connector and the cables in the specific configuration as recited in the ’550 Patent claims, which is not taught in any references cited.

A. Petitioners fail to show a motivation to modify Peter and Neroni to read onto limitations [1a.2],[20a.2],[28a.2] “a cyclone unit” and therefore failed to render these limitations obvious

Neither Peter nor Neroni discloses or suggests a cyclone. Ex2001, ¶60. Peter discloses a filter separation system with a “dustbag or filter” labeled 17. Ex1007, 2. Neroni is completely silent with respect to the type of the separation system employed. Ex2001, ¶60. This deficiency is fatal for Ground 3 with respect to claims 1, 20, 28, and all their dependent claims.

Aware of this fatal deficiency, Petitioners present a two-pronged argument that fails to salvage this ground. First, Petitioners and their expert claimed that “lateral outlet opening 14” makes Peter a cyclonic system. Pet., 78; Ex1002, ¶¶ 306–307. This is not how a POSITA would have understood Peter. Ex2001, ¶60.

Nowhere in Peter is the idea suggested that this outlet opening creates a cyclone. *Id.* Further, as a POSITA would have understood, a cyclonic separator would at least need a concentrated tangential airflow with reasonable radial speed so as to separate the dust which has a higher specific density than air against a sidewall. *Id.* The lateral outlet opening 14 as disclosed in Peter lacks a device that sends airflow with any radial speed, because this is a lateral opening that blows air at a generally perpendicular direction at the sidewall. *Id.* In contrast, the ’550 Patent with respect to Fig. 96, for example, explicitly teaches that “[i]nlet passage 384 may redirect the axial flow through inlet 192 to a tangential flow for developing a cyclonic motion inside cyclone chamber 184.” Ex1001, 35:22-25. Therefore, nothing in Peter suggests that the outlet opening 14 creates a cyclone. Ex2001, ¶60.

Second, Petitioners claimed that, regardless of the absence of a cyclone in the cited references, it would have been obvious for a skilled artisan to simply add a cyclone unit. Pet., 78-79; Ex1002, ¶308. Petitioners cited to nothing in Peter or Neroni but instead tried to invoke a skilled artisans’ general knowledge. *Id.* This is improper gap-filling. A cyclonic separator unit is not a “peripheral” element for the

'550 Patent. Throughout the Abstract, the Figures, and the Specification of the '550 Patent, the cyclonic separator including a cyclone chamber and a dirt collection region or chamber plays a central role. Ex2001, ¶¶22–23. See, e.g., Ex1001, Abstract, Figs. 20–23, 53–54, 59–60, 78, 82–96. Moreover, in the independent claims 1, 20, 28, as well as many of their dependent claims, the cyclone unit comprising a cyclone chamber serves as antecedent bases. For such non-peripheral element, as a matter of law, the Ground fails when the element is missing from cited 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 "the missing limitation is not a 'peripheral' one, 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").

Further, a POSITA would have known and weighed the pros and cons of replacing a non-cyclonic separator with a cyclonic one and would not simply replace all separators with cyclonic separators. Ex2001, ¶61. Indeed, even today, not all vacuum cleaners, especially handheld vacuum cleaners, are cyclonic. Ex2001, ¶61. For example, the overall weight of a cyclonic separator may be heavier than a filter-based separator, making it less desirable for handheld or stick vacuums. Ex2001, ¶61. For another example, a POSITA would have known that filtration-based separators perform effectively and competitively compared with alternate separation methods, including cyclones. Ex2001, ¶61; Ex2002 at 575, 578, 579, 583.

Furthermore, a POSITA would have understood that a cyclone's effectiveness decreases if the diameter of the cyclone decreases, and therefore a slimmer and smaller-sized handheld system such as Peter's disclosed embodiment may not fit an effective cyclone separator. Ex2001, ¶61; Ex2003 at 234–235; Ex2004 at 1007–1008. Petitioners failed to cite to any evidence that a skilled artisan would find the pros of replacing Peter's filter system with a cyclone to outweigh the cons and costs of doing so; instead, Petitioners simply ignored the costs and drawbacks of making such a proposed modification.

Moreover, Petitioners failed to explain what shape, configuration or location the cyclone would take within the proposed Peter/Neroni combination. Petitioners did not, for example, indicate where that cyclone would be placed such that it would then be clear whether its later proposed modification to place the electrical cables through the cyclone would even be possible, nor did Petitioners provide any figures or drawings to show how the cyclone should be placed within the Peter system. Ex2001, ¶59.

Critically, the Challenged Claims require not only the presence of a cyclone, but “an electrical connector provided on the front end of the cyclone unit wherein electrical cables extend rearwardly from the electrical connector through a central portion of the cyclone unit toward the suction motor and fan assembly.” Petitioners' vague allegation of substituting a generic cyclone does not provide sufficient

information to indicate whether it would even be possible to meet the remaining elements of the claim.

B. Petitioners fail to show a motivation to modify Peter and Neroni to read onto limitations [1a.3], [12a.3], [20a.3, 20e], or [28a.3] regarding the “electrical connector” and “electrical cables” and therefore failed to render obvious these limitations

As explained above, all Challenged Claims require (1) an electrical connector provided at the front end of the cyclone unit or air treatment member, and (2) that electrical cables extend rearwardly from the connector through a central portion of the cyclone unit or air treatment member (for claims 1, 12, and 28) or through the cyclone unit adjacent the hand vacuum cleaner inlet passage (for claim 20). Ex2001, ¶63. Petitioners failed to show that the combination of Peter and Neroni renders obvious these limitations.

Petitioners claimed that powered cleaning tools are known and useful. Pet., 71-73. Even assuming that this is true, a skilled artisan would have understood that powered and electrified tools have both pros and cons. The mere fact that powered cleaning tools existed in the prior art is not sufficient motivation enough for a POSITA to modify Peter in the way that Petitioners suggested to use powered tools. A POSITA would also be aware of the drawbacks of using powered cleaning attachments, and would further be aware of the benefits of *unpowered* cleaning attachments, and therefore, would not be motivated solely by the benefits of including powered cleaning attachments.

As an example, unpowered cleaning attachments are more reliable and generally tend to last longer with normal use, as there are fewer moving parts that can break. Ex2001, ¶64. Moreover, powered attachments are not always preferable because they draw additional power away from the suction motor, which is of particular concern for battery-powered vacuum cleaners. A POSITA would know adding an electrically powered attachment to a vacuum cleaner with a battery pack would decrease the amount of time a user could use a battery-powered vacuum without needing to recharge the battery. Ex2001, ¶65. A POSITA would also be aware that runtime is an important factor to take into consideration when designing a cordless vacuum. *Id.* Lastly, a POSITA would also know that attachments, such as a “powerhead having a rotating agitator” of Butler, could be implemented without the use of electrically powering the attachment. Ex2001, ¶66. For example, pneumatics and the use of the suction power of the vacuum itself can be used to enable brush rolls and “rotating agitators” to spin. *Id.* Alternatively, a dedicated battery and brush motor could be implemented without the use of using power from the vacuum body. *Id.* Moreover, an agitator can be spun simply through a user’s own movement of the attachment, such as in a carpet sweeper. The benefits of using the foregoing methods as opposed to electrically powering an attachment using the battery pack of the hand vacuum include increased runtime (for a cordless vacuum

cleaner), as power from the battery pack of the hand vacuum is not depleted to power the attachment. *Id.*

Additionally, a POSITA would understand that it would be easier to implement the foregoing methods, rather than developing a powered attachment, that requires the use of electrical connectors and cables to deliver power to the attachment from the battery pack of a hand vacuum, which would also need to be designed into the vacuum. *Id.* Petitioners failed to cite to any evidence that a skilled artisan would find the pros of including a powered tool in the handheld system of Peter would outweigh the cons and costs of doing so; instead, Petitioners simply ignored the drawbacks and costs of including powered tools in a handheld system.

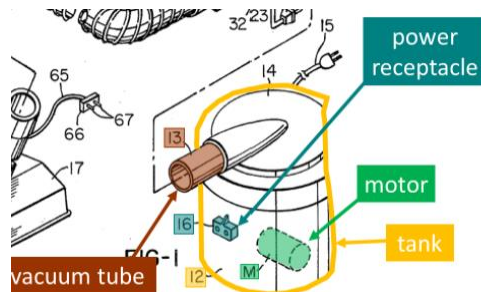
Furthermore, the combination of Peter and Neroni fails to render obvious these limitations because Petitioners have not shown that the combination would include an electrical connector provided at the front end of the cyclone unit or air treatment member or electrical cables extend rearwardly from the connector through a central portion of the cyclone unit, as claimed. Ex2001, ¶¶67-80.

Neroni discloses a “female power receptacle 16” on the outer surface of the canister, which supplies power to the cleaning tool through the flexible hose assembly. Ex1011, 3:34–49; Ex2001, ¶67. The hose assembly has a power cord with a male fitting that plugs into female power receptacle 16. *Id.* The canister also has a cord assembly 15 to plug into a suitable power source (*e.g.*, a wall). *Id.*, 3:25–

29. Figure 4 is a wiring diagram, which shows that power receptacle 16 is connected to the motor, but this does not disclose how the electrical cables themselves are configured with respect to the canister. *Id.*, Fig. 4. Ex2001, ¶67. Notably, Neroni *does not* say (or even suggest) that an electrical cable runs from power receptacle 16 “through a central portion of the cyclone unit” to the motor. Ex2001, ¶67. If anything, Neroni would be designed so any power cable run around (not “through”) the air separation in Neroni to get to the motor. Indeed, as discussed above, neither Peters nor Neroni actually provide a cyclone unit—so they cannot possibly disclose this element. And whereas Petitioners vaguely suggest placing a cyclone unit in the Peters/Neroni combination, because the Petition does not provide details on where it would be located or oriented, that mythical combination does not indicate how electrical cables could be provided “through” any central portion—since it is not clear what its shape is in the first place.

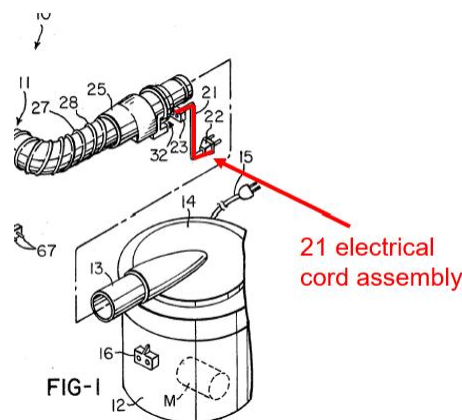
First of all, Neroni only discloses that “a female power receptable 16 [is] disposed on the outside surface of its tank 12” but does not further describe where the receptable 16 is preferably located. Nothing in Neroni describes that the receptable is to be located at the “front” end of anything. Further, when transposing the receptacle from Neroni to Peter, Petitioners and their expert only nakedly claim that a skilled artisan would put the receptacle at the front end, exactly as guided by

the claims, without citing to any teachings from any references. Pet., 83-84; Ex1002 ¶168.



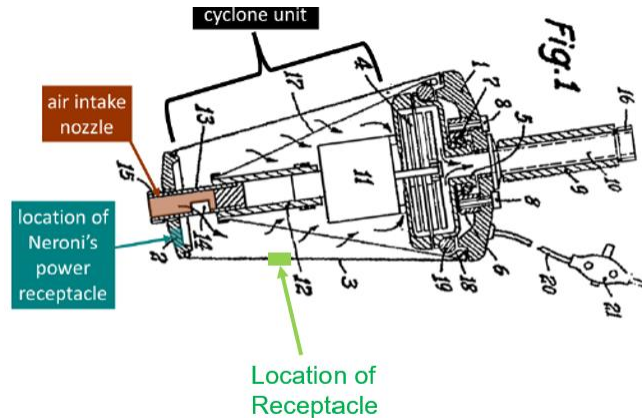
Ex1011, Fig. 1 (annotated by Petitioners, excerpted, to show the receptacle in teal). But this modification is—at best—guided by the claims of the '550 Patent and not by any teachings in either Peter or Neroni.

In Neroni, the electrical receptacle 16 is not immediately adjacent to the tube 13, but rather it is spaced at a distance of an “electrical cord assembly 21” that runs from hose assembly 11 to receptacle 16. Ex1011, 3:42–49.



Ex1011, Fig. 1 (annotated and excerpted to show the electrical cord assembly length in red). As such, as shown below, a POSITA would have understood that if the

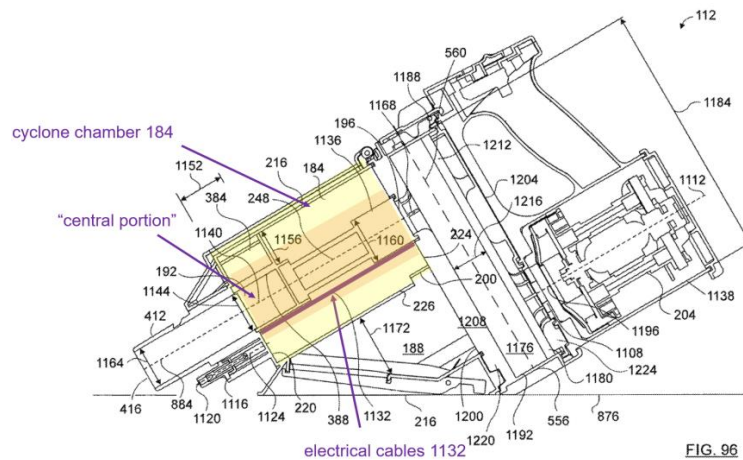
receptacle were to be transposed to Peter, an analogous location would be similarly a location on the sidewall at a certain distance (approximately the length of the electrical cord assembly's length) from the tube connection, as indicated above. Ex2001, ¶69.



Ex1007, Fig. 1 (annotated by Petitioners to show the proposed receptacle in teal, further annotated by Patent Owner to show alternative location of the receptacle in green). Contrary to Petitioners and their expert's assertion, a POSITA would not have put the receptacle 16 where Petitioners propose and would have understood that putting the receptacle right next to the intake nozzle of Peter would lead to the intake nozzle interfering with the manual plug and unplug of the male fitting 22 into the receptacle 16. Ex2001, ¶69. Further, this would cause the dangling of the electrical cord assembly 21, causing wiring issues, intertwining with the hoses or attachments, or mess with the cleaning process. *Id.*

At bottom, nothing in either Neroni or Peter suggests that the electrical connector should be placed at the front end of the cyclone unit or the air treatment member. Petitioners' analysis finds no support in either reference.

Further, claims 1, 20, and 28 all require that electrical cables extend rearwardly from the connector through a central portion of the cyclone unit or air treatment member. The Specification of the '550 discloses, for example, with respect to Fig. 96, “one or more electrical cables 1132 . . . extend from electrical connector 1116 along vortex finder 1136 of cyclone chamber 184 toward motor housing 1138”—i.e., through a “central portion” of the cyclone unit. Ex1001, 34:39–58. This configuration is illustrated below in an annotated version of Figure 96 of the '550 Patent.



Id., Fig. 96 (annotated).

Nothing in Neroni or Peter discloses or suggests that the cables extend rearwardly from the connector. Ex2001, ¶73. Moreover, nothing in Neroni or Peter

discloses or suggests that the cables extend rearwardly through a central portion of the cyclone unit (there is no cyclone to begin with) or air treatment member. Ex2001, ¶73. First of all, Neroni in either text or figures discloses nothing regarding how the relay wire “R” between the receptacle 16 and motor is wired. Ex2001, ¶74. Petitioners and their expert improperly took the reference’s absolute silence as free canvas to draw their own fiction based on the claim’s language.

To a POSITA, extending wires centrally through an air treatment member or specifically a cyclone unit raises the risk of the wires interfering with air treatment and also increasing the risk of air and sharp debris damaging the wires, reducing the longevity. Ex2001, ¶75. Petitioners identified zero references suggesting or contemplating extending wires through an air treatment member prior to the ’550 Patent’s disclosure of extending wires through a central portion of the cyclone chamber. Yet, guided by the very claims they seek to invalidate, Petitioners and their expert nakedly assert that electrical cables according to Neroni “extend rearwardly” “through a central portion of the separation unit, including a radially central portion shown above, and a central portion from top to bottom.” Pet., 85-86; Ex1002, ¶325. Again, Petitioners cited to no evidence either in Neroni or elsewhere suggesting that the cables should go through a central portion of a cyclone unit or an air treatment member. This is incorrect. Ex2001, ¶75. Instead, a POSITA having

read Neroni would have understood that the cables are wired around the air treatment chamber, beneath the sidewall or partially along the top wall or bottom wall. *Id.*

Alternatively, Petitioners and their expert claimed that it would have been obvious to have “cord assembly 15 extend rearwardly through a central portion (centered both front-to-back and top-to-bottom) of the ‘tank.’” Pet., 86; Ex1002, ¶326. This is again incorrect. First of all, a POSITA having read Neroni would understand that the cord assembly 15 connects a power outlet to the canister tank and is not the cables extending from the receptacle; and the cables extending between receptacle 16 and the motor is “relay R.” Ex2001, x; Ex1011, 3:25–29, 6:42–45. Nothing is disclosed or suggested about the location of relay R. Ex2001, ¶76. And again, Petitioners and their expert cited to nothing in Neroni or elsewhere suggesting or contemplating extending wires through an air treatment member prior to the ’550 Patent’s disclosure.

It is therefore abundantly clear that Petitioners’ analysis with respect to the electrical connector and electrical cables elements are guided by hindsight, reading teachings from Neroni where none exist.

Petitioners argue that it would have been “obvious to try” running an electrical cord through the center of Neroni’s tank (*i.e.*, through the air separation unit) to the motor. Pet., 86. Again, this is impermissible hindsight bias, at best. Just because this is the most “direct” or shortest route between the power receptacle and the motor

does not mean a POSITA would have tried it. Neither Petitioners' nor their expert provide *any* evidence of vacuum cleaners with electrical cables running through the middle of an air separation unit in a canister vacuum, where sharp debris could damage and even cut the cables. To the contrary, as explained above, the only logical solution would be to run electrical cables around and not "through" a central portion of the air separation.

Furthermore, even if Neroni taught or suggested an electrical cable through the middle of the air treatment member in a canister vacuum (it does not), the Petition is further deficient on explaining why a POSITA would have been motivated to apply that teaching to Peter's stick vacuum. As discussed above, Petitioners make only conclusory statements that a "POSA would've been motivated to implement Neroni's 'power receptacle 16' on the front end of Peter's cyclone unit." Pet., 83. Petitioners' hindsight-driven argument here uses the claim language as a map. *KSR*, 550 U.S. at 421. Peter does not make mention at all of using powered tools, and yet Petitioners provide conclusory statements about how a POSITA would have been motivated to implement Neroni's power receptacle in Peter. Ex2001, ¶79. Petitioners do not explain how or why a POSITA would be motivated to combine the references exactly as the claims require and implement a powered tool solution within Peter's system based on Peter's disclosure.

Finally, Petitioners and their expert claimed that “it would have been obvious to extend the electrical cables rearwardly through Peter’s ‘connecting piece 12.’” Pet., 87; Ex1002, ¶328. This is predicated on the incorrect assumption (as discussed above) that the receptable is to be placed on the narrow front end 2. Ex2001, ¶80. Regardless of where the receptable is, prior to the disclosure of the ’550 Patent, a POSITA would still have understood that the general rule is to not cross air pathways or air and dust barriers with wirings. Ex2001, ¶80. Peter provides no suggestion or indication to a POSITA that wires may run through the connecting piece 12, which is a structural piece holding filter 17 in place. *Id.* Petitioners and Dr. Giachetti did not discuss why A POSITA without the hindsight instruction from the ’550 Patent, would have made the extension as proposed. Ex2001, ¶80.

Thus, Petitioners have not met their burden of showing that any of the Challenged Independent Claims are rendered obvious by Peter and Neroni combination under Ground 3.

C. The Peter and Neroni combination does not render obvious Challenged Dependent Claims 2–11, 13–19, and 21–27

Because Peter in view of Neroni fails to disclose independent claims 1, 12, 20, and 28 of the ’550 Patent, the Peter and Neroni combination necessarily fails to disclose dependent claims 2–11, 13–19, and 21–27, which depend on independent claims 1, 12, and 20, respectively.

More specifically, with respect to claim 10, Petitioners point to the lateral outlet opening 14 of Peter for the claimed “tangential air inlet.” Pet., 105-106; Ex1002, ¶¶413-14. As discussed above, this lateral opening sends air perpendicular to the sidewall and does not create tangential air flow. Ex2001, ¶82. Petitioners failed to prove that Peter in view of Neroni renders claim 10 obvious.

As such, Petitioners have failed to demonstrate a reasonable likelihood of success on any claim in Ground 3.

V. Ground 4: Peter, Neroni, Martelliere, and/or Jansen Combination Does Not Render Obvious Challenged Claims 1–28

A. Petitioners do not address each element of the Challenged Claims 1–28

Ground 4 only addressed elements [1a.1]/[28a.1], [1a.2]/[12a.2]/[20a.2]/[28a.2], and [9]. Pet., 112–19. The Petition did not address any other elements or claims of the Challenged Claims 1–28. The Petition did not even incorporate Ground 3 (which it seems most closely related to) by reference. This is improper and is sufficient reason that Ground 4 should fail.

Petitioners’ citation to the cursory discussion in Mr. Giachetti’s declaration of the alleged motivations to combine Peter, Neroni, Martelliere, and/or Jansen and of elements [1a.1]/[28a.1], [1a.2]/[12a.2]/[20a.2]/[28a.2], and [9] fails to cure this 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.

Assuming, for the sake of argument, that Petitioners meant to alternatively further include Martelliere in all analyses of Ground 3 above (which Petitioners failed to argue), this proposed further inclusion of Martelliere is driven by hindsight and produces an inoperable, self-conflicting device as discussed below. Ex2001, ¶¶83–90.

Thus, Petitioners have not shown that the Peter, Neroni, Martelliere, and/or Jansen combination renders the Challenged Claims obvious.

B. Petitioners have not shown that a POSITA would have been motivated to combine Peter, Neroni, Martelliere, and/or Jansen

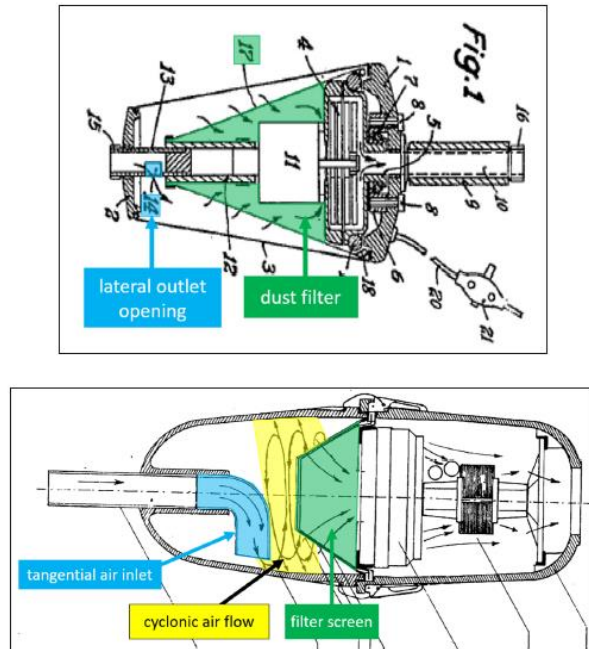
Petitioners provide conclusory statements about simple substitution and alleged advantages of modifying Peter without providing any explanation for such assertions. In particular, here, Petitioners proposed a combination of up to four references—Peter, Neroni, Martelliere, and Jansen. Petitioners, however, failed to address how each of these references would be implemented within the combination. Indeed, Petitioners fail to address how Neroni would be implemented within the combination or to reference or cite to any discussion of Neroni at all. While Petitioners address the combination of Peter and Neroni with respect to a prior ground, Petitioners do not address Neroni at all in the context of modifying Peter based on Martelliere and/or Jansen. For example, Petitioners simply claim that “[a] POSA would’ve been motivated to employ cyclonic filtration with Peter using Martelliere’s teachings of a tangential pipe” and “[a] POSA would’ve been

motivated to modify Peter's handle having a hand grip portion, Peter's 'exhaust nozzle' having a 'rubber grip,' to have a 'bi-directional,' 'bilaterally symmetrical' shape as Jansen teaches." Pet., 113–18. But these alleged rationales do not address how they interplay with a modification based on Neroni.

Furthermore, each of Petitioners' alleged rationales for modifying Peter are merely conclusory statements with no explanation for why the combination is a simple substitution, why the advantages of cyclonic separation as taught by Martelliere or a bilaterally symmetrical handle as taught by Jansen would apply to the vacuum of Peter, or why the substitutions would improve the vacuum of Peter. To support these alleged rationales, Petitioners cite the Declaration of Mr. Giachetti (Ex1002). However, these paragraphs also merely make conclusory statements about simple substitution and alleged advantages without providing any explanation for such positions.

Specifically, Petitioners propose to add the tangential air inlet from Martelliere into Peter. Pet., 114–115; Ex1002, ¶451. But as a POSITA would have understood, adding a tangential air inlet close in space to the filter 17 as arranged in the Peter system would blow dust that has already been collected. EX2001, ¶89. Further, as clearly shown by Petitioners' own annotations, the added tangential air inlet would spatially occupy the same space and conflict with the connecting piece 12 of Peter. Ex2001, ¶¶83–90. As discussed above, Petitioners proposed that the

cables should run along with connecting piece 12 in the combination system of Peter and Neroni. And here, for Ground 4, Petitioners proposed adding a spatially conflicting piece of component (tangential air inlet according to Martelliere) without explaining how the further combined system should look or should operate. If the connecting piece 12 were to be removed, then at least a portion of the cables would be dangling naked in the cyclone chamber, risking being cut by air and debris. Ex2001, ¶88. If the tangential air inlet were to be made narrower or smaller to make space for the connecting piece 12, then the tangential air flow would disturb the settled and collected dirt and dust, and also be constricted, significantly reducing the efficiency of the vacuum. Ex2001, ¶89. Either way, Petitioners' cherry-picking exercise guided by the claims has created an inoperable device. "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). Ground 4 further fails for this reason.



Ex1007, Fig. 1 and Ex1010, Fig. 1 (both annotated by Petitioners).

Furthermore, nothing in the proposed combination of Peter, Neroni, Martelliere, and/or Jansen cures the issues described above with respect to the “electrical connector” and “electrical cables.” Thus, for the same reasons as explained with respect to Ground 3, Ground 4 fails.

As such, Petitioners have failed to demonstrate a reasonable likelihood of success on any claim in Ground 4.

VI. Ground 1: Butler Does Not Anticipate Challenged Claims 1–28

- A. Butler does not disclose “an electrical connector provided on the front end of the cyclone unit” [1a.3]/[20a.3], “an electrical connector provided on the front end of the air treatment chamber” [12a.3], or “an electrical connector provided on the front end of the cyclone unit at a location adjacent the hand vacuum cleaner air inlet” [28a.3]**

All asserted claims require “an electrical connector provided on the front end” of the vacuum cleaner (*e.g.*, on the front end of the cyclone unit or the air treatment chamber. ID, 29. As the Institution Decision observed, Petitioners failed to meet their burden of showing that Butler discloses these elements.

In particular, the Petition failed to identify any disclosure in Butler that teaches that an electrical connector is provided at the front end of the cyclone unit or the air treatment chamber, as recited. Petitioners cite Butler’s disclosure that “if a powered attachment is provided, suitable power leads can be provided to connect the powered attachment to the electric circuit.” Pet., 21 (citing Ex1005, 22:10–11). But this disclosure does not teach an *electrical connector provided on the front end*. Although power leads may include an electrical connector, power leads themselves are cables or wires. Ex2001, ¶38. Indeed, in the Petition, Petitioners refer to Butler’s “power leads” as “electrical cables.” Pet., 23. Thus, a disclosure of “power leads,” without more, does not teach an electrical connector provided on the front end. Furthermore, even if one were to assume that the power leads of Butler necessarily

included an electrical connector, Butler is silent as to where this “electrical connector” would be located with respect to the “dirt receptacle body” of Butler.

Citing a conclusory expert declaration (rather than Butler itself), Petitioners asserted that “Butler’s ‘entry tube’ includes an electrical connector provided on the front end of the cyclone separator to connect to ‘power leads’ and power Butler’s powered attachment.” Pet., 22. No text or figures in Butler support this assertion. Ex2001, ¶41. As discussed above, Butler discloses nothing about an electrical connector for the “powered attachments,” much less anything about this connector being included in the “entry tube” (or anywhere else on the front end of Butler’s dirt receptacle body). Ex2001, ¶42.

B. Butler does not disclose “electrical cables extend rearwardly from the electrical connector through a central portion of the air treatment member toward the suction motor and fan assembly” [1a.3]/[12a.3]/[28a.3] or “electrical cables extend rearwardly from the electrical connector through the cyclone unit adjacent the hand vacuum cleaner inlet passage towards the suction motor and fan assembly” [20e]

As explained above, Butler’s disclosure with respect to providing electrical power to attachments is extremely thin and limited to two sentences: “[I]f a powered attachment is provided, suitable power leads can be provided to connect the powered attachment to the electric circuit. These leads may pass around or through the dirt receptacle, or may be integrated into the dirt receptacle body.” Ex1005, 22:10–13. Ex2001, ¶44. This scant disclosure relied on by Petitioners fails to teach the novel

configuration of electrical cables required by the Challenged Claims. Notably, Butler does not disclose the claimed origin of the electrical cables (from the “electrical connector”); it does not disclose the claimed direction of the cables’ extension (“rearwardly . . . toward the suction motor and fan assembly”); and it does not disclose in any way **how** or **where** the cables pass through Butler’s dirt receptacle (such as “through a central portion of the air treatment member” for claims 1, 12, and 28 or “through the cyclone unit adjacent the hand vacuum cleaner inlet passage” for claim 20). Ex2001, ¶45.

Petitioners asserted that “Butler teaches the electrical cables extend rearwardly from the electrical connector through a central portion of the cyclone unit toward the suction motor and fan assembly,” Pet., 22–24, but they cited no support from Butler (rather, they parrot a conclusory declaration). Petitioners annotated Figure 5 of Butler in an attempt to demonstrate the claimed “electrical cables,” see Pet., 22, but nothing in Butler’s Figure 5 or accompanying text identifies the power leads or any electrical cable. Ex2001, ¶46. Petitioners’ own artistic additions and renderings are not Butler’s disclosure. *Id.*

Petitioners argue that because the power leads of Butler “may pass . . . through the dirt receptacle” of Butler, they must “extend rearwardly through a central portion of the cyclone separator toward the fan/motor assembly.” Pet., 23. This is incorrect. Ex2001, ¶47. While Petitioners contend in Section VII of the Petition that no claim

terms require construction, for these limitations Petitioners posit a broad construction of “a central portion.” See Pet., 23–24 & n.8. But even a broad construction of “a central portion” does not save Butler, because Butler discloses *nothing* about *how* or *where* the cables may pass through the dirt receptacle. *Id.* For example, Butler’s disclosure that “leads may pass . . . through the dirt receptacle” could mean that the leads only pass through a corner, which is not “through a central portion” under any reasonable construction. Thus, whether the “central portion” refers to the center from left-to-right, radially central, or some other center, Butler fails to disclose electrical cables extending “through” such portion. *Id.*

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

C. Butler does not anticipate Challenged Dependent Claims 2–11, 13–19, and 21–27

Because Butler fails to anticipate independent claims 1, 12, 20, and 28 of the ’550 Patent, Butler necessarily fails to anticipate dependent claims 2–11, 13–19, and 21–27, which depend on independent claims 1, 12, and 20, respectively. As such, Petitioners have failed to demonstrate a reasonable likelihood of success on any claim in Ground 1.

VII. Ground 2: Butler Does Not Render Obvious Challenged Claims 1–28

Tacitly acknowledging holes in its anticipation arguments based on Butler, Petitioners turned to obviousness to attempt to plug those holes. But Petitioners’

arguments are driven by impermissible hindsight, as the Institution Decision found. ID, 29–30. *See KSR*, 550 U.S. at 421 (“A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.”). Petitioners provided conclusory statements about the modifications they propose being “obvious to try” and the alleged advantages or motivations for so modifying Butler. Petitioners, however, use the claim language itself as the incentive to modify Butler—not any motivation from other references in the art or from the common sense of a POSITA, or even any other motivation consistent with *KSR*’s instruction to look to the “need or problem known in the field of endeavor at the time of invention and addressed by the patent.” *Id.* at 420.

To support its proposed rationales for modifying Butler, Petitioners cited the Declaration of Mr. Giachetti. However, these paragraphs also merely make conclusory statements about simple modifications that were allegedly obvious to try and proffer alleged advantages without providing any explanation for such conclusory statements.

“[K]nowledge of a problem and motivation to solve it are entirely different from motivation to combine particular references” or to modify a particular reference in view of the knowledge of a POSITA. *Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1373 (Fed. Cir. 2008). Petitioners fall into the trap of, at best, identifying problems in Butler that require solving, but they come up short in

identifying a motivation to solve such problems in the ways required by the Challenged Claims.

- A. Butler does not render obvious “an electrical connector provided on the front end of the cyclone unit” [1a.3]/[20a.3], “an electrical connector provided on the front end of the air treatment chamber” [12a.3], or “an electrical connector provided on the front end of the cyclone unit at a location adjacent the hand vacuum cleaner air inlet” [28a.3]**

As discussed above, Butler not only fails to disclose any electrical connector for “powered attachments,” but it also provides no teachings regarding where the nondisclosed electrical connector may be located. Petitioners use the ’550 Patent and the Challenged Claims as a blueprint to cure these deficiencies. Petitioners cite to no objective evidence (other than a parroting a conclusory declaration) in support of their assertion that not only using a connector to power the tools would be obvious to a POSITA, but so too would placing the connector exactly where the claims require the connector to be. See Pet., 64–65 (citing only one paragraph of Butler and one paragraph of an expert declaration to support the conclusion that a POSITA “would’ve been motivated to place an electrical connector on Butler’s entry tube, at a location on the front end of the cyclone separator provided at a location adjacent the handvac air inlet, and aligned with and connected to a rigid airflow conduit electrical connector when the handvac is mounted to the rigid airflow conduit, which would have a corresponding rigid airflow conduit electrical connector”).

For this Ground, Petitioners do not cite a single reference (either as part of a combination with Butler or as a background reference) showing an electrical connector on the front end of the cyclone unit or air treatment chamber. Petitioners assume that the claimed solution of the '550 Patent would be the only way to position an electrical connector in Butler, but this argument ignores feasible alternatives to a connector on the front wall, such as running an electrical cable through or over a sidewall. Ex2001, ¶52. It is established law that “where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful,” it is erroneous to equate “obvious to try” with obviousness—which is exactly what Petitioners did here. *In re Kubin*, 531 F.3d 1351, 1359 (Fed. Cir. 2009) (citing *In re O'Farrell*, 853 F.2d 894, 903 (Fed. Cir. 1988)). Because Butler does not identify any details regarding wiring or connecting powered attachments, and Petitioners do not cite to any such details known in the art, Petitioners resort to improperly filling in these holes in Butler with improper hindsight.

B. Butler does not render obvious “electrical cables extend rearwardly from the electrical connector through a central portion of the air treatment member toward the suction motor and fan assembly” [1a.3]/[12a.3]/[28a.3] or “electrical cables extend rearwardly from the electrical connector through the cyclone unit adjacent the hand vacuum cleaner inlet passage towards the suction motor and fan assembly” [20e]

As explained above, Butler does not disclose the novel configuration of electrical cables required by the Challenged Claims. Petitioners again rely on hindsight to allegedly fix these deficiencies in Butler. Petitioners thus failed to show that Butler renders these limitations obvious.

Petitioners argue that there are exactly two solutions to implementing Butler’s teaching of power leads extending “through the dirt receptable” and each is obvious to try—one following the ’550 Patent’s teaching (extending through a central portion of the cyclone unit) and one not following the ’550 Patent’s teaching (not extending through a central portion of the cyclone unit). *See* Pet., 66. This argument turns the obviousness analysis on its head. By this logic all claimed limitations are obvious to try, because for any technical challenge, there are two solutions, namely, one following a challenged claim’s teaching and one not following the challenged claim’s teaching. Ex2001, ¶54.

As discussed above, where the prior art gives no indication of which parameters were critical and no direction as to which of many possible choices is likely to be successful, it is erroneous to equate “obvious to try” with obviousness.

In re Kubin, 531 F.3d at 1359. Butler does not identify any specific choices as to how to wire the “power leads” of Butler, other than stating at a high level that they “may pass around or through the dirt receptacle, or may be integrated into the dirt receptacle body.” Ex1005, 22:10–13. Petitioners do not fill this gap in disclosure with any teachings from the prior art—whether in references or within the knowledge of a POSITA. Contrary to Petitioners’ arguments, there are numerous ways for wires to “pass . . . through” a receptacle, *e.g.*, cutting through a corner near the front wall, transversely cutting through a diameter, cutting through a corner near the rear wall, hugging a wall along the perimeter, etc. Petitioners failed to consider any of these options before concluding it would be obvious for the power leads in Butler to pass through the central portion of the cyclone unit. Ex2001, ¶55.

Exemplifying their desperation, Petitioners argue that it would have been obvious to have “the electrical cables extend through the cyclone’s entire radial center”—*i.e.*, for the cables to be exposed and in the airflow of the cyclone—because this is “where there is the least airflow” and it is “the shortest distance through the cyclone unit.” Pet., 67. But neither Petitioners nor their expert provide *any* examples of vacuum cleaners with unprotected and unsupported electrical cables running down the center of a cyclone, where sharp debris could damage and even cut the cables. Moreover, in that placement in Butler, hair, carpet fibers and other stringy debris would wrap around the cable. To remove it, a user would have to cut

or pull it away from the electrical cable, leading to a risk of damaging or removing the electrical cable entirely. Petitioners' unsupported and conclusory arguments on obviousness should be rejected.

Thus, Petitioners have not met their burden of showing that any of the Challenged Independent Claims are rendered obvious by Butler under Ground 2.

C. Butler does not render obvious Challenged Dependent Claims 2–11, 13–19, and 21–27

Because Butler fails to render obvious independent claims 1, 12, 20, and 28 of the '550 Patent, Butler necessarily fails to render obvious dependent claims 2–11, 13–19, and 21–27, which depend on independent claims 1, 12, and 20, respectively. As such, Petitioners have failed to demonstrate a reasonable likelihood of success on any claim in Ground 2.

VIII. CONCLUSION

For the foregoing reasons, Patent Owner respectfully requests that the Board reject Petitioner's patentability challenges to Challenged Claims.

Date: December 11, 2024

Respectfully submitted,

/Brian M. Buroker/

Brian M. Buroker (Reg. No. 39,125)
GIBSON, DUNN & CRUTCHER LLP
1700 M St. NW
Washington, D.C. 20036
Phone: (202) 955-8500
Fax: (202) 467-0539
Email: bburoker@gibsondunn.com

Brian Rosenthal
(*pro hac vice* forthcoming)
Gibson, Dunn & Crutcher LLP
200 Park Avenue
New York, NY 10166
Phone: (212) 351-2339
Email: brosenthal@gibsondunn.com

Nathan Curtis (Reg. No. 70,471)
Gibson, Dunn & Crutcher LLP
2001 Ross Avenue Suite 2100
Dallas, TX 75201
Phone: (214) 698-3423
Email: ncurtis@gibsondunn.com

Shuo Josh Zhang (Reg. No. 71,774)
Gibson, Dunn & Crutcher LLP
1700 M St. NW
Washington, DC 20036
Phone: (202) 955-8270
Email: szhang@gibsondunn.com

Vivian Lu (Reg. No. 74,443)
Gibson, Dunn & Crutcher LLP
200 Park Avenue
New York, NY 10166
Phone: (212) 351-3837
Email: vlu@gibsondunn.com

Counsel for Patent Owner

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 7,982, according to the word count tool in Microsoft Word.

DATED: December 11, 2024

By: / Brian M. Buroker /

Brian M. Buroker (Reg. No. 39,125)
GIBSON, DUNN & CRUTCHER LLP
1700 M St. NW
Washington, D.C. 20036
Phone: (202) 955-8500
Fax: (202) 467-0539
Email: bburoker@gibsondunn.com

Counsel for Patent Owner

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:

DysonIPR@kirkland.com
christian.huehns@kirkland.com
matt.hershkowitz@kirkland.com
jay.emerick@kirkland.com
bhailes@kirkland.com

DATED: December 11, 2024

By: / Brian M. Buroker /

Brian M. Buroker (Reg. No. 39,125)
GIBSON, DUNN & CRUTCHER LLP
1700 M St. NW
Washington, D.C. 20036
Phone: (202) 955-8500
Fax: (202) 467-0539
Email: bburoker@gibsondunn.com

Counsel for Patent Owner