

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. IPR2024-00733
U.S. Patent No. 10,327,607

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	Docket Report for <i>SharkNinja Operating LLC v. Dyson, Inc.</i> , No. 1:23-cv-12372 (D. Mass.)
2002	US Patent Application Publication No. 2015/0359394

TABLE OF ABBREVIATIONS

Abbreviation	Term
'607 Patent	U.S. Patent No. 10,327,607 (Ex1001)
Challenged Claims	Claims 1–14 of U.S. Patent No. 10,327,607
Fig.	Figure
IPR	<i>inter partes</i> review
Patent Owner	Omachron Intellectual Property Inc.
Petitioners	Dyson Technology Limited and Dyson, Inc.
POSITA	person[s] of ordinary skill in the art
Liddell	UK Patent Publication GB2399780A
Organ	UK Patent Publication GB2372434A
Simpson	US Patent No. 1,940,609
Soler	US Patent No. 5,267,371
DC14Manual	Dyson DC14 Owner's Manual
Lim	US Patent Application Publication No. 2004/0237482

I. INTRODUCTION

Patent Owner Omachron Intellectual Property Inc. provides the following Preliminary Response to the Petition filed by Dyson Technology Limited and Dyson, Inc. requesting *inter partes* review of claims 1–14 of U.S. Patent No. 10,327,607.

Petitioners had the burden of showing that there is a reasonable likelihood that it would prevail with respect to at least one challenged claim. 35 U.S.C. § 314(a). Petitioners did not meet that burden. Although Petitioners assert that the claims of the '607 patent “mix-and-match well-known, interchangeable vacuum cleaner features,” Pet., 5, none of Petitioners’ grounds disclose or render obvious the claimed hand carriable vacuum cleaner. Indeed, rather than meaningfully addressing the Challenged Claims, Petitioners attempt to overwhelm the Board with an excessive number of references and grounds. And although Petitioners purport to raise 11 grounds, several grounds include multiple obviousness combinations under the same heading. At bottom, Petitioners present at least 15 grounds against 14 challenged claims—hardly a sign of a confident petitioner.

Petitioners raise only one anticipation ground against a subset of challenged claims. That ground fails. Anticipation requires that a prior art reference “must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements arranged as in the claim.” *Net MoneyIn, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). Because Petitioners fail to

show that at least one limitation in each claim challenged under this ground is disclosed, this ground fails.

Petitioners' 14 different obviousness grounds similarly fail. A Petition must provide, with particularity, rationale to combine the teachings of the cited art and establish "whether the relevant skilled artisan had a motivation to combine pieces of prior art in the way eventually claimed in the patent at issue." *Intercontinental Great Brands LLC v. Kellogg N. Am. Co.*, 869 F.3d 1336, 1343 (Fed. Cir. 2017). Petitioners failed to provide any such rationale, relying instead on hindsight bias to argue that combinations of references directed to vastly different form factors and solving different problems render obvious the Challenged Claims. But hindsight bias cannot be "the thread that stitches together prior art patches into something that is the claimed invention" in an obviousness analysis. *Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017).

For at least the reasons set forth below, Petitioners fail to show that any Challenged Claim is unpatentable, and the Board should deny institution of IPR.

II. CLAIM CONSTRUCTION

A claim subject to IPR shall be construed using the same standard as in a civil action. 37 C.F.R. § 42.100(b). For purposes of this Preliminary Response, Patent Owner addresses the construction of the preambles ("hand carriable surface cleaning

apparatus”) only. Patent Owner reserves the right to submit additional or different claim terms for construction should the Board institute IPR.

A. “hand carriable surface cleaning apparatus”

As explained below, Patent Owner submits that the preamble of the asserted claims (“hand carriable surface cleaning apparatus”) is limiting. Furthermore, in the event the Board finds the preambles to be limiting, Petitioners advance an unreasonably broad interpretation of “hand carriable” that is inconsistent with the intrinsic record.

1. The Preambles of Claims 1–14 Should Be Construed as Limiting

The preambles of all Challenged Claims recite “[a] hand carriable surface cleaning apparatus.” “Whether to treat a preamble as a limitation is a determination resolved only on review of the entire patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002). Here, the intrinsic record points to a single inescapable conclusion: that the invention of the ’607 Patent is to a “hand carriable” vacuum cleaner—not the upright and canister-style vacuum cleaners relied on by Petitioners. Thus, although the presumption is that preamble language is not treated as limiting, this case falls outside the general rule because the preambles “recite[] essential structure or steps [and are] necessary to give life, meaning, and vitality to the claim[s].” *Proveris Sci.*

Corp. v. Innovasystems, Inc., 739 F.3d 1367, 1372 (Fed. Cir. 2014) (internal quotation marks omitted).¹

a. The Preambles Provide Antecedent Basis

The preambles of Challenged Claims 1–14 are limiting because “the claim(s) depend on [them] for antecedent basis.” *C.W. Zumbiel Co. v. Kappos*, 702 F.3d 1371, 1385 (Fed. Cir. 2012); *see also Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1358 (Fed. Cir. 2012) (citation omitted) (“[A] preamble phrase that provides antecedent basis for a claim limitation generally limits the scope of the claim.”).

For example, independent claim 12 recites “[a] hand carriable surface cleaning apparatus” in the preamble, and then later recites in the body of the claim that “the hand carriable surface cleaning apparatus further comprises a screen positioned in the fluid flow path between the first stage air inlet and the second stage air inlet.” Ex1001, cl. 12. The use of the definite article “the” in a claim refers to terms previously introduced with “a” or “an.” *Baldwin Graphic Systems, Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342 (Fed. Cir. 2008). The only antecedent basis for “the hand carriable surface cleaning apparatus” in the body of claim 12 is in the

¹ The parties in the co-pending litigation in the District of Massachusetts are briefing whether the preamble of the claims of the '607 Patent are limiting. Briefing was complete as of June 25, 2024. Ex2001.

preamble. Similarly, the body of dependent claim 8 (which depends ultimately on claim 1) recites “the hand carriable surface cleaning apparatus,” and the only antecedent basis for this term is the preamble of claim 1. Ex1001, cl. 8. That the preamble is required for antecedent basis alone is sufficient reason that the preamble is limiting. *See Deere & Co.*, 703 F.3d at 1358 (“[A] preamble phrase that provides antecedent basis for a claim limitation generally limits the scope of the claim.”) (citations omitted).

b. The Preambles Recite a Fundamental Claim Limitation

The preambles are also limiting here because they “recite[] particular structure or steps that are highlighted as important by the specification.” *Proveris Sci.*, 739 F.3d at 1372; *see also Shoes by Firebug LLC v. Stride Rite Child.'s Grp., LLC*, 962 F.3d 1362, 1368 (Fed. Cir. 2020) (finding “textile footwear” in the preamble provided antecedent basis for reference to “the footwear” later in the claim and evidenced intent that “textile footwear” is limiting).

The entirety of the intrinsic record demonstrates that the “hand carriable” limitation of the preamble is a critical part of the invention of the '607 Patent. That the surface cleaning apparatus of the claims is “hand carriable” is a “fundamental characteristic of the claimed invention.” *Poly-Am., L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004) (internal quotation marks omitted).

Starting with the claims, all Challenged Claims require a “handle.” That the claim is drawn to a “hand carriable surface cleaning apparatus” informs the purpose and structure of the claimed “handle”—*i.e.*, the handle must be of the type to allow a user to carry the surface cleaning device. *See Deere*, 703 F.3d at 1358 (holding that “rotary cutter deck” in the preamble was limiting because it “describes a fundamental characteristic of the claimed invention that informs one of skill in the art as to the structure required by the claim”).

Turning to the specification, the very first phrase of the Abstract is “[a] hand carriable surface cleaning apparatus.” Ex1001, Abstract. The specification further defines the “field” of the invention to be “a surface cleaning apparatus comprising a base with a removable portable surface cleaning unit such as a pod or other hand carriable surface cleaning apparatus wherein the portable surface cleaning apparatus is usable when mounted on the base or when removed therefrom.” Ex1001, 1:25–30. Notably, the specification explicitly distinguishes “[u]pright vacuum cleaners,” which “the consumer does not have to carry,” from “hand carriable” vacuum cleaners like those in the claims and equates “hand carriable” with “portable.” *Id.* at 1:37–54. The focus on the “portable” and “hand carriable” nature of the embodiments disclosed throughout the ’607 Patent indicates that the preamble recitation has been employed to characterize the claimed invention and thus is limiting. *See, e.g., id.* at 1:25–30, 1:64–6:6, 8:35–9:14, 10:56–59, 11:30–35.

The preambles in *In re Fought*, 941 F.3d 1175, 1179 (Fed. Cir. 2019), which the Federal Circuit held to be limiting, are analogous to those at issue here. In *In re Fought*, the claims recited “[a] travel trailer having a first and second compartment therein separated by a wall assembly which is movable so as to alter the relative dimensions of the first and second compartments without altering the exterior appearance of the travel trailer.” *Id.* at 1177. After reviewing the claims and specification, the Court held that “travel trailer” in the preamble “is a specific type of recreational vehicle and that this term is a structural limitation of the claims.” *Id.* at 1179. The Court reasoned that the evidence showed that “[t]owability is a structural difference, not an intended use,” and that “[a] living area is likewise a structural requirement.” *Id.* Thus, because “travel trailer” in the preamble was a fundamental characteristic of the invention, it was a limiting requirement of the claims.

Likewise, here, “hand carriable surface cleaning apparatus” in the preamble is a specific type of surface cleaning apparatus (*e.g.*, vacuum) that is carried by hand instead of rolled along the floor. Thus, “hand carriable” is a structural difference that must be accounted for, not just “an intended use.” *See also Piggy Pushers, LLC v. Skidders Footwear, Inc.*, 544 F. App’x 984, 989 (Fed. Cir. 2013) (holding “sock” in the preamble was limiting because “the inventors have conceived and described a particular kind of ‘sock’ that overcomes th[e] problem[s]” of the prior art).

2. Petitioners' Proposed "Plain and Ordinary Meaning" of the Preambles Is Overly Broad and Unsupported

Petitioners argue that if the Board construed "hand carriable" as limiting, "it should be given its plain and ordinary meaning: able to be carried by a hand or hands." Pet., 13. Petitioners, however, interpret its purported plain and ordinary meaning to encompass surface cleaning devices that plainly are not "carried by a hand or hands," such as upright and canister-style vacuum cleaners. As explained below, the plain and ordinary meaning of "hand carriable," based on the intrinsic record, excludes upright and canister-style vacuum cleaners.

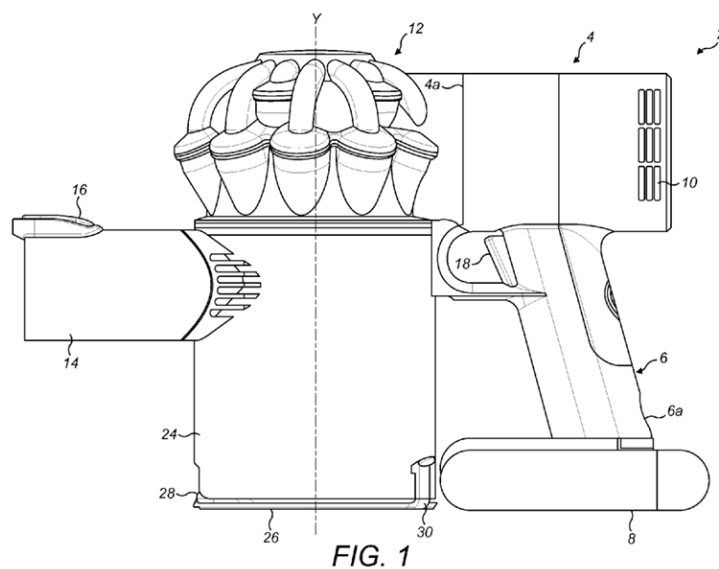
A goal of the '607 Patent is to overcome disadvantages with certain types of vacuum cleaners, such as "upright vacuum cleaners" and "[c]anister vacuum cleaners," due in part to their limited mobility. Ex1001, 1:37–54. As such, one "broad aspect" of the invention is "a surface cleaning apparatus compris[ing] a portable cleaning unit." *Id.*, 1:64–67. Thus, in the specification of the '607 Patent, Patent Owner distinguishes between "hand carriable vacuum cleaners," on the one hand, and "upright vacuum cleaners" and "canister type vacuum cleaners," on the other. *Id.*, 1:37–42. For example, Patent Owner explains that "typical upright vacuum cleaners are provided with a surface cleaning head that includes wheel mounted to a bottom surface thereof. Upright vacuum cleaners are easy for a consumer to use since the consumer does not have to carry the vacuum cleaner but merely push it over a surface." *Id.*, 1:42–47. It would negate the very purpose of

the '607 Patent to interpret “hand carryable” to encompass upright and canister-style vacuum cleaners.

Petitioners argue that Patent Owner acceded to an interpretation of “hand carryable” that could encompass upright and canister-style vacuum cleaners during prosecution of the '607 Patent. Pet., 14. This is incorrect. During prosecution, the Examiner rejected pending independent claim 1 based on Jeong (US Pat. App. Pub. No. 2006/0137309) (a canister-style vacuum) and Oh (US Pat. No. 7,294,159) (an upright vacuum). Ex1004, 985–89. In the same Office Action, the Examiner found that certain dependent claims included allowable subject matter. *Id.* In response, “to expedite prosecution,” Patent Owner rewrote rejected claim 1 to include the allowable subject matter. *Id.* at 1029. In doing so, Patent Owner emphasized that “[a]lthough the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application.” *Id.* at 1032. At bottom, Patent Owner’s decision to respond to the Examiner’s rejection on another basis does not mean that Patent Owner agrees with the Examiner’s characterization of the prior art.

Petitioners’ arguments are also inconsistent with the extrinsic evidence. For example, US Patent Application Publication No. 2015/0359394, assigned to

Petitioner Dyson Technology Ltd., recites “[a] hand carriable surface cleaning apparatus” and, like the ’607 Patent, describes a portable vacuum cleaner that can be carried by hand—not an upright or canister-style vacuum cleaner. Ex2002, cls. 1–71, ¶ 3 (“Handheld vacuum cleaners are popular with users due to their light weight and inherent portability, as well as the lack of power cords, which makes such vacuum cleaners particularly convenient for spot cleaning tasks as well as for cleaning larger areas.”).



Id., Fig. 1; see also *id.*, Figs. 2–3. Thus, Petitioners’ own patent confirms that “hand carriable” relates to portable hand vacuum cleaners, not traditional upright or canister-style vacuums.

For these reasons, “hand carriable” of the preambles of the Challenged Claims excludes vacuums that are not traditionally carried around by hand, such as upright and canister-style vacuums.

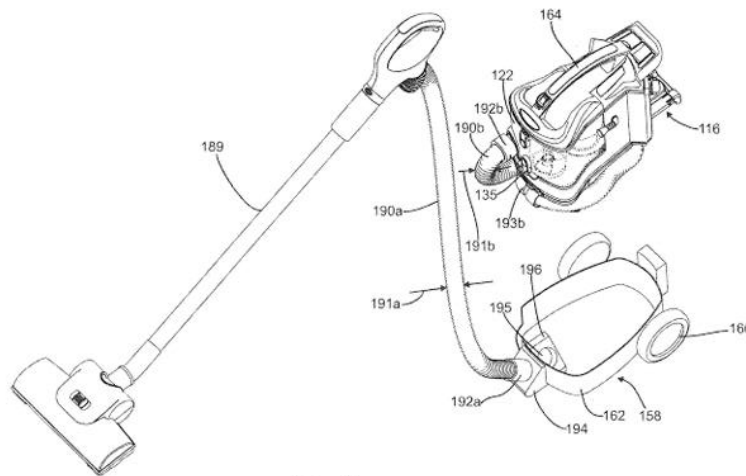
III. LEVEL OF ORDINARY SKILL IN THE ART

Solely for the purpose of this Preliminary Response, Patent Owner does not challenge Petitioners' proposed definition of a POSITA. Patent Owner reserves the right to provide an alternative definition of a POSITA if IPR is instituted.

IV. TECHNICAL BACKGROUND

A. Summary of the '607 Patent

The '607 Patent is directed to a hand carriable surface cleaning apparatus. Ex1001, Abstract, 1:25–30. A key feature of the surface cleaning apparatus (shown below in Figure 13) is its portability, which addresses shortcomings of upright vacuum cleaners that “may not be useable in small or crowded areas” and of canister vacuum cleaners that have bodies that must be “separately move[d] . . . which can add an extra step during the cleaning process.” Ex1001, 1:37–54.



Ex1001, Fig. 13.

The hand carriable surface cleaning apparatus provides the user with flexibility and “may be used as a wheel mounted surface cleaning apparatus” so that the user “need not carry the surface cleaning apparatus” or “as a hand or strap carriable surface cleaning apparatus” when “increased maneuverability” is needed, “such as when[] stairs or a smaller or crowded area is to be cleaned.” Ex1001, 5:65–6:6, 10:56–59, 11:33–36. In one exemplary embodiment, the apparatus includes a first cyclonic cleaning stage with a dirt collection region and an openable bottom door for emptying the dirt collection region and a second cyclonic stage movable relative to the first stage with an inner ring and an outer ring of second stage cyclones. Ex1001, cl.1.

B. Overview of Asserted References

1. Liddell

Liddell is a 2004 UK patent application publication that describes an upright vacuum incorporating a specific arrangement of cyclones “for noise damping.” Ex1005, Title.

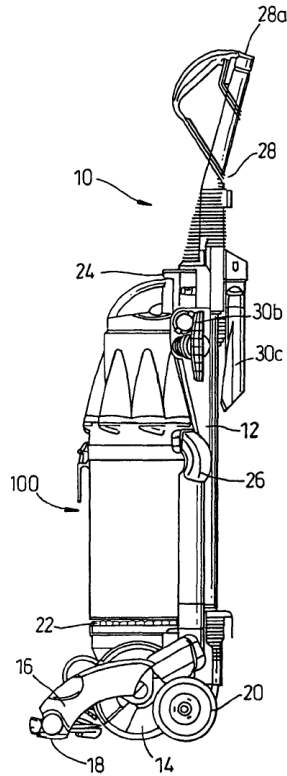
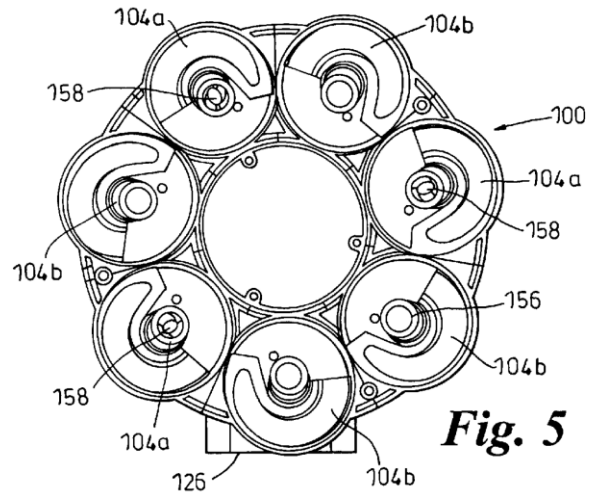


Fig. 1b

Ex1005, Fig. 1b.

Liddell's specific arrangement of cyclones includes the cyclones being "arranged in parallel with one another" and which includes a set of cyclones "each having a fluid outlet in which a centrebody is provided" to "keep[] the level of noise generated to an acceptable level" and a set of cyclones "each having a fluid outlet in which no centrebody is provided" to "ensure[] that the risk of blockage is reduced."

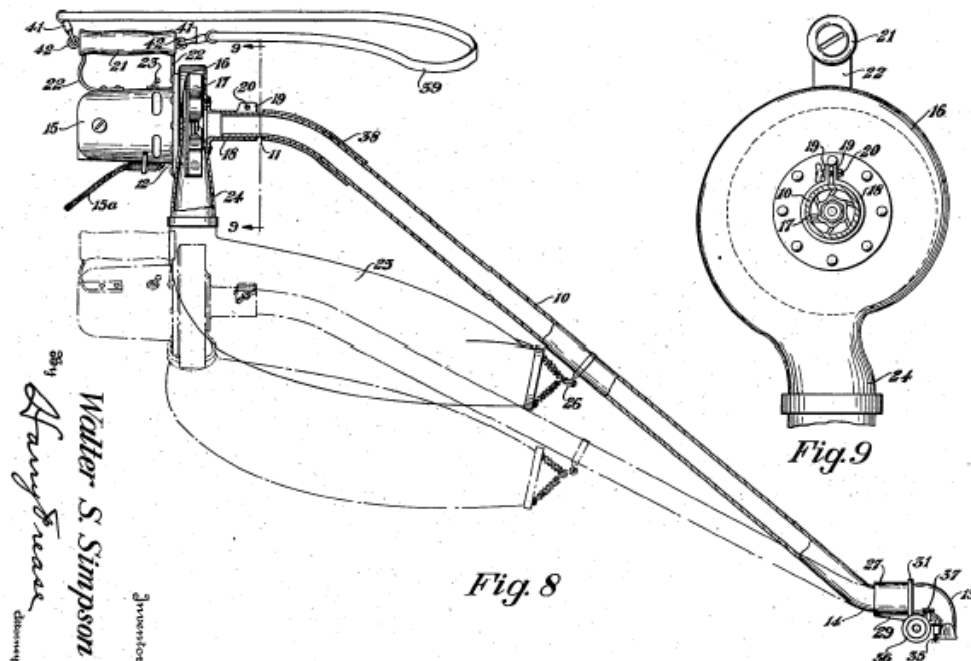
Ex1005, 2:6–13.



Ex1005, Fig. 5.

2. Simpson

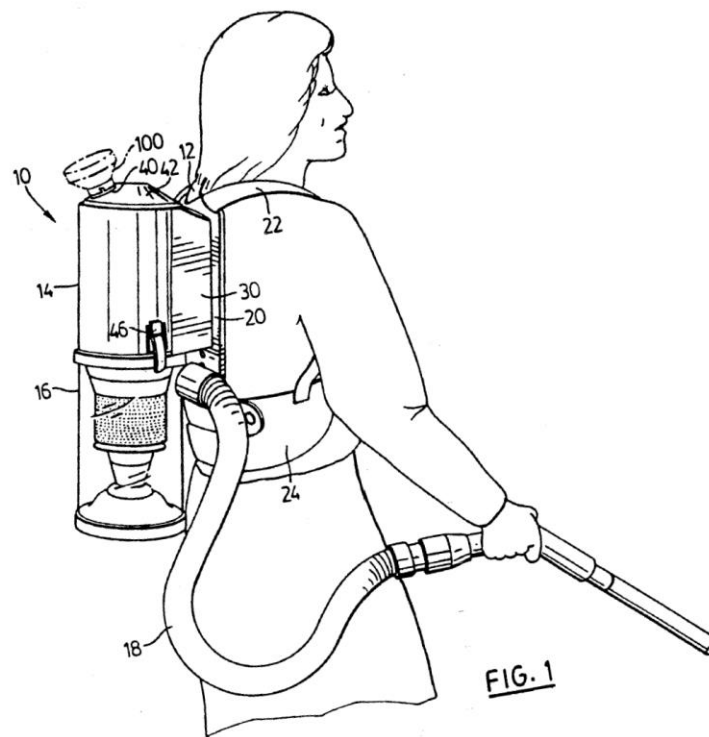
Simpson is a 1928 US patent that describes a “portable electric cleaner” with a “motor-fan exhausting unit” with a “horizontal motor” coaxial with a centrifugal exhaust fan and a “dust collecting bag.” Ex1007, 1:27–32, 1:101–107.



Ex1007, Figs. 8, 9.

3. Soler

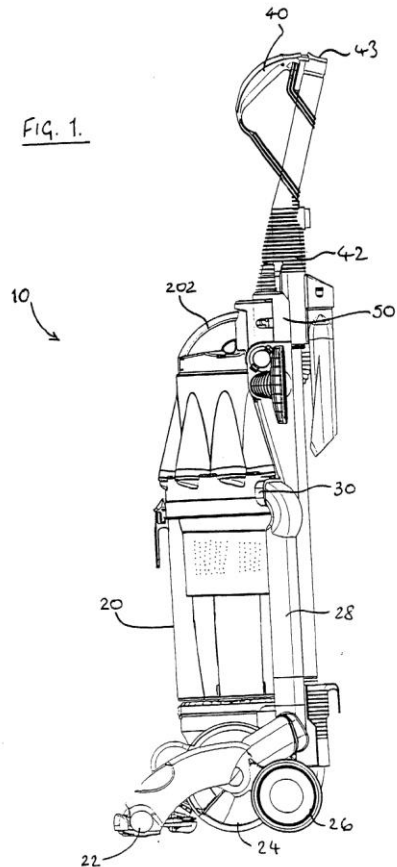
Soler is a 1993 US patent directed to a “back-pack vacuum,” a type of vacuum cleaner distinct from upright vacuum cleaners and canister vacuum cleaners. Ex1008, 1:15–2:50, 2:51–67. Soler’s design provides an “ergonomic” configuration and weight distribution “in part by mounting the motor at the top,” close to the user’s back. Ex1008, 7:6–27.



Ex1008, Fig. 1.

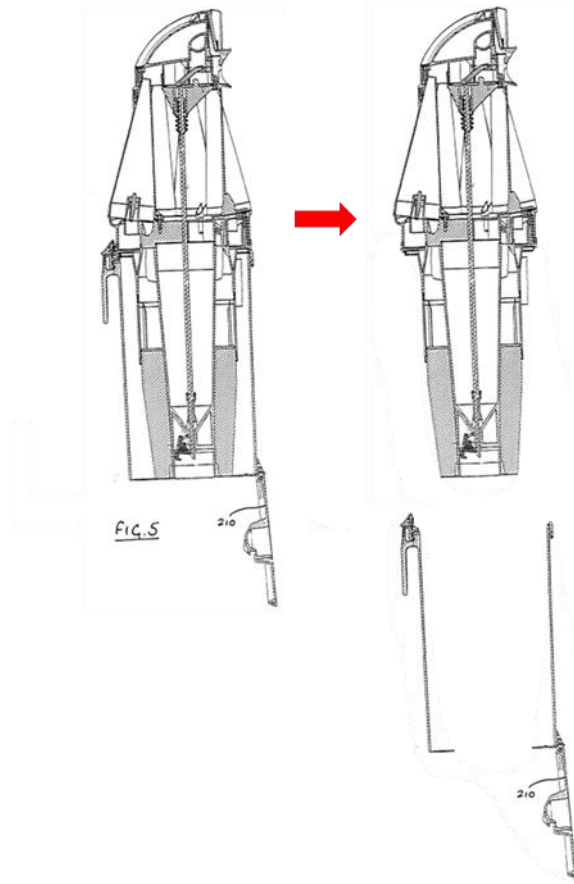
4. Organ

Organ is a 2002 UK patent publication directed to a bagless upright vacuum cleaner with a removable cyclonic chamber. Ex1006, Abstract, 2:26–3:31.



Ex1006, Fig. 1.

The cyclonic chamber “has a door . . . at its base which can be opened to empty the chamber” of dirt, and the “cylindrically-walled cyclonic chamber” can be separated from the rest of the cyclonic separation unit, including the inner wall, fins, and shroud to provide access to the shroud, allow a user remove any debris trapped between the chamber and the tube or shroud, or allow a user to thoroughly clean the chamber. Ex1006, Abstract, 2:26–3:31, 12:1–16.

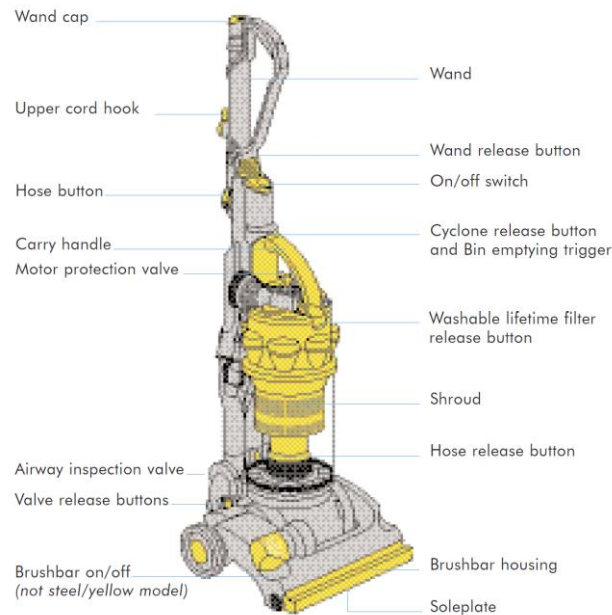


Ex1006, Fig. 5 (annotated).

5. DC14Manual

DC14Manual purports to be a user manual for the Dyson DC14, an upright vacuum.²

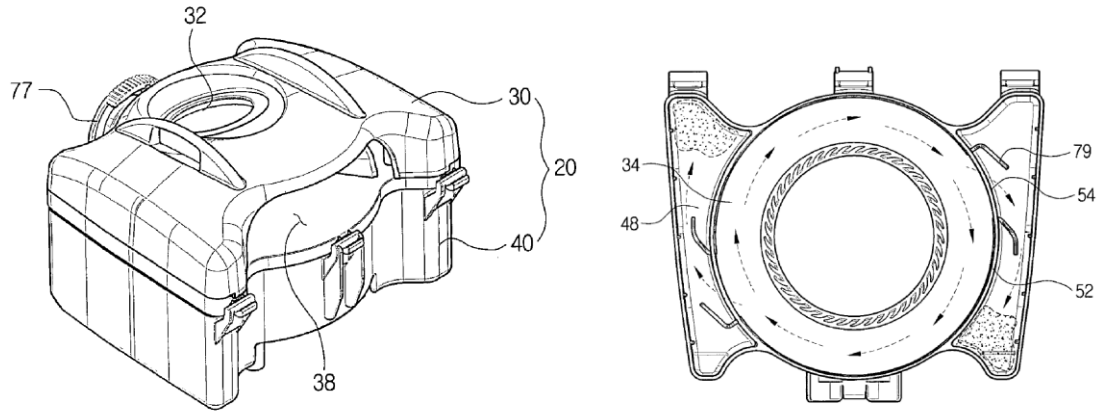
² DC14Manual refers to both of the “DC07” and the “DC14” vacuums. *See, e.g.*, Ex1009, 3.



Ex1009, 4.

6. Lim

Lim is a 2004 US patent application publication describing a dust-collecting apparatus of a vacuum cleaner having “a plurality of dust-collecting chambers 48 for collecting the dust and dirt separated from the air . . . by centrifugal force” that are “partitioned off from the cyclone chamber.” Ex1010, [0050], [0053]. The apparatus includes an upper casing and a lower casing “hinged to each other” at one side and can be opened like a clamshell to be emptied. Ex1010, [0067].



Ex1010, Figs. 3, 5.

V. SPECIFIC GROUNDS OF UNPATENTABILITY

A. Petitioners Failed to Show that Liddell Anticipates Challenged Claims 1, 3–4, 6–13 (Ground 1)

1. Liddell does not disclose a “hand carriable surface cleaning apparatus” [1pre]/[12pre]/[13pre]

Petitioners failed to meet their burden of showing that Liddell discloses the claimed “hand carriable surface cleaning apparatus.” Petitioners argue that the preambles of the Challenged Claims are not limiting. *See, e.g.*, Pet., 15–16. However, as discussed above, a “hand carriable surface cleaning apparatus” is a fundamental aspect of the Challenged Claims and is distinguishable from an upright vacuum cleaner. The Petition failed to identify any structural feature in Liddell that would suggest that its upright vacuum cleaner is a hand carriable surface cleaning apparatus as recited.

Petitioners claim that Liddell’s upright vacuum is hand carriable because “it includes ‘handle 122’ for carrying it.” Pet., 16. Petitioners ignore that the

'607 Patent explicitly distinguishes between “upright vacuum cleaners,” such as the one depicted in Liddell, which “the consumer does not have to carry,” and “hand carriable” vacuum cleaners as recited in the Challenged Claims. Ex1001, 1:37–54.

Petitioners cite to a product manual for the Dyson DC07 and a Dyson patent filed in 2004—both depicting upright vacuums that have handles similar to Liddell’s—as evidence that the handles “allow the user to lift and carry the appliance as a whole” and that those vacuums are therefore hand carriable. Pet., 16 (citing Ex1014 & Ex 1018, 5:29–30). Those references, however, discuss the use of the handle as a way “to facilitate carrying the cleaner between different locations” and not for holding and operating the vacuum cleaner during use: i.e., as a hand carriable vacuum. *See, e.g.*, Ex1018, 2:2–5. Petitioners also did not explain or establish how those references are relevant to Liddell beyond a generic statement that the references depict vacuums “like Liddell’s.” Pet., 15–16. The cited portions of Mr. Giachetti’s declaration merely repeat the Petition’s conclusory statements without providing any explanation and should be given little weight. *E.g.*, Ex1002, ¶¶ 78–82; *see also Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (P.T.A.B. Aug. 24, 2022) (precedential).

Thus, Petitioners failed to meet their burden of showing that Challenged Independent Claims 1, 12, and 13 are anticipated by Liddell. Because Liddell does not anticipate claim 1 of the '607 Patent, Liddell necessarily fails to anticipate

dependent claims 2–11, which depend on claim 1. As such, Petitioners failed to demonstrate a reasonable likelihood of success on any claim in Ground 1.

B. Petitioners Failed to Show that Liddell Alone or in View of Organ Renders Obvious Challenged Claims 1, 3–13 (Ground 2)

Petitioners combine multiple invalidity arguments into a single “ground” called Ground 2: (1) obviousness based on Liddell alone, and (2) obviousness based on Liddell in view of Organ. Regardless of the improper grouping (to avoid the word limits given the number of grounds Petitioners attempt to cram into a single petition), Petitioners failed to meet their burden with respect to either obviousness argument.

1. Petitioners failed to show that Liddell alone renders obvious Challenged Claims 1, 3–13

Petitioners state without support or explanation that, to the extent that Liddell does not anticipate certain limitations of Challenged Claims 1 or 3–13, Liddell renders those limitations obvious. For example, Petitioners argue that a POSITA would have understood Liddell’s upright vacuum, a type of vacuum that the ’607 Patent explicitly distinguishes from hand carriable vacuums, to teach a hand carriable vacuum. Pet., 42–43. Alternatively, Petitioners argue that it “would have been obvious for POSAs to reduce Liddell’s weight” to teach a hand carriable vacuum, and that modification would have carried a reasonable expectation of

success because it would involve “simply manufacturing Liddell’s vacuum with lighter weight materials or reducing the size of certain components.” Pet., 43.

Petitioners’ superficial analysis ignores that modifying Liddell’s upright vacuum to be a hand carriable vacuum would change the form factor of the vacuum entirely and require significant changes to many of its components. Petitioners provide no further support or evidence regarding how the materials or size of Liddell could be changed to make it “hand carriable,” and therefore failed to meet their burden of showing that a POSITA would have been motivated to modify Liddell as suggested.

2. Petitioners failed to show that a POSITA would have been motivated to combine Liddell and Organ

Petitioners argue that, to the extent that Patent Owner asserts Liddell does not teach certain elements of the Challenged Claims, Organ teaches those elements “and POSAs would have been motivated to combine them with Liddell.” Pet., 38. Petitioners provided only conclusory statements that “POSAs would have been motivated to modify Liddell with Organ’s” various disclosures and would have “had a reasonable expectation of success” without providing any explanation for such conclusory statements. *See, e.g.*, Pet., 38–42.

Petitioners’ argument here is driven by impermissible hindsight. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (“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.”). As explained above, Liddell lacks a fundamental element of the '607 Patent—being “hand carriable.” So, Petitioners argued that it would have been obvious to modify Liddell to make it “hand carriable” and that a POSITA would have modified Liddell in exactly the way that the '607 Patent recites. These conclusory arguments fall far short of meeting Petitioners' burden.

To support its proposed rationales for modifying Liddell, Petitioners cite the Declaration of Mr. Giachetti (Ex1002). However, these paragraphs also make conclusory statements that allege that the modifications are simple and apply known techniques to similar devices and alleged advantages without providing any explanation for why the modification would have been made. *E.g.*, Ex1002, ¶¶78–82. Petitioners failed to present a clear argument showing that a POSITA would have been motivated to combine the art to result in Petitioners' proposed combination. *See Netflix, Inc. v. DivX, LLC*, 84 F.4th 1371 (Fed. Cir. 2023); *see also Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016).

Therefore, Petitioners failed to meet their burden of showing that any of the Challenged Claims are rendered obvious by Liddell alone or in view of Organ under Ground 2.

C. Petitioners Failed to Show that Liddell in View of Organ and DC14Manual Renders Obvious Challenged Claim 10 (Ground 3)

In Ground 3, Petitioners challenge claim 10 only, which depends on independent claim 1, addressed above. Nothing in Ground 3 purports to solve the issues addressed above with respect to claim 1. Therefore, Petitioners' challenge to claim 10 based on Liddell in view of Organ and DC14Manual similarly fails.

D. Petitioners Failed to Show that Liddell in View of Lim or in View of Organ and Lim Renders Obvious Challenged Claim 14 (Ground 4)

As with Ground 2, Petitioners confusingly combine multiple invalidity arguments into this single "ground": (1) obviousness based on Liddell in view of Lim, and (2) obviousness based on Liddell in view of Organ and Lim. Petitioners have not met their burden with respect to either obviousness argument.

1. Petitioners failed to show that a POSITA would have been motivated to combine Liddell and Lim or Liddell, Organ, and Lim

Both obviousness arguments in Ground 4 rely on a proposed combination of Liddell and Lim. A petitioner must show "whether there was an apparent reason to combine the known elements in the fashion claimed by the patents at issue." *KSR Int'l*, 550 U.S. at 420 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Petitioners failed to do so here. Petitioners provide only conclusory statements about the alleged motivation for and advantages of modifying Liddell, alone or in view of

Organ, based on Lim's disclosure without providing any explanation or support for such conclusory statements.

Petitioners state that "POSAs would have been motivated to combine Lim's external dust-collecting chambers 48 with Liddell's cyclonic separating apparatus 100." Pet., 55. But Liddell and Lim are directed to solving different problems with their respective vacuum cleaners.

Liddell discloses an upright vacuum with an internal dust collection chamber integrated into its cyclone chamber while Lim discloses a dust-collecting apparatus of a vacuum cleaner having "a plurality of dust-collecting chambers" on either side of its cyclone chamber. Ex1010, [0049]–[0050]; Ex1005, Figs. 1a, 1b, 7:1–8.

For example, Liddell's "upstream cyclone" includes an "internal wall 132" (blue) that extends the entire length of the cyclone chamber and "define[s] a collection space 134 for fine dust." Ex1005, 7:1–8. The internal wall 132 includes "four equi-spaced baffles or fins 136" (orange) that "assist with the deposition of large dirt and dust particles in the collection space 138 defined between the internal wall 132 and the cylindrical bin 106." Ex1005, 7:10–15. The collection spaces 134 and 138 are emptied by removing cylindrical bin 106 from the vacuum body and "opening the base 108." Ex1005, 6:18–25.

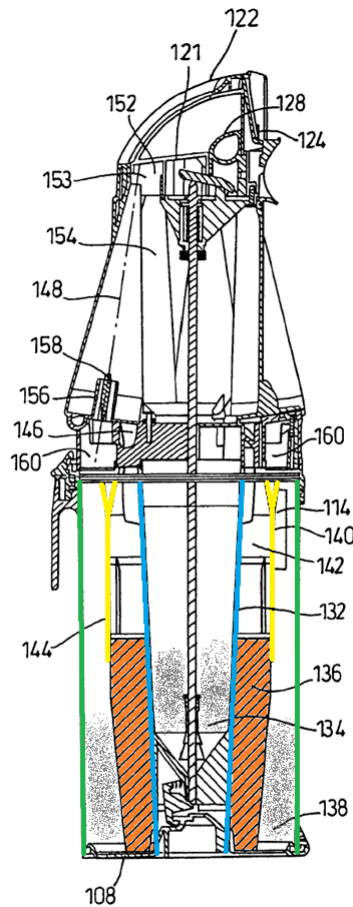
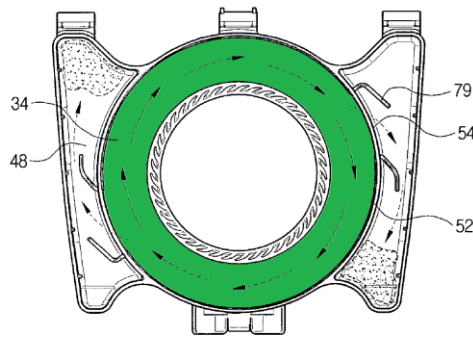


Fig. 3b

Ex1005, Fig. 3b (annotated).

In contrast, Lim's dust-collecting chambers 48 are "partitioned off from the cyclone chamber 34" and are emptied by unhinging the upper case and lower casing from each other like a clamshell. Ex1010, [0053], [0067].



Ex1010, Fig. 5 (annotated).

Petitioners neither acknowledge nor attempt to reconcile these conflicting disclosures. Indeed, each of Petitioners' alleged rationales are merely conclusory statements with no explanation for whether a POSITA would have a reasonable expectation of success, why the advantages of the external dust-collecting chambers of Lim apply to Liddell's vacuum with internal dust collection spaces integrated into its cyclone chamber, or why the modification would improve Liddell's vacuum.

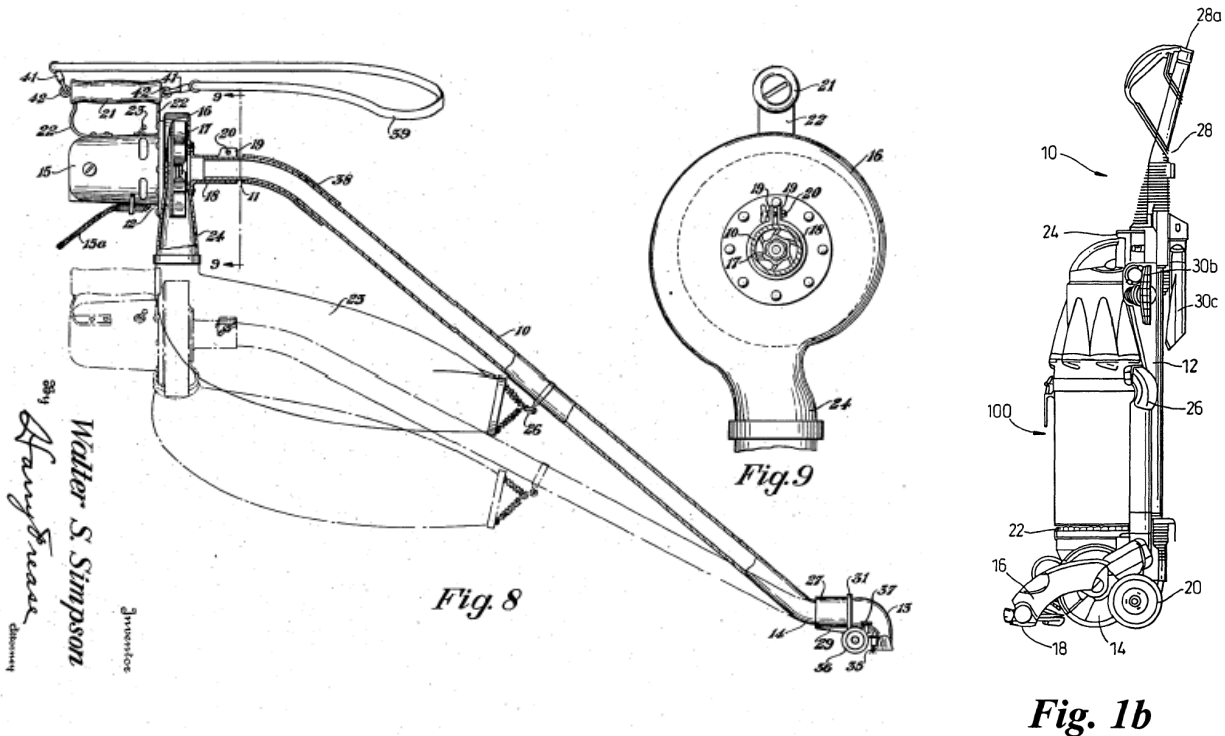
Petitioners cite Mr. Giachetti's Declaration. *E.g.*, Ex1002, ¶¶240–49. However, these paragraphs simply repeat the conclusory statements in the Petition without providing any further explanation.

As such, Petitioners failed to demonstrate a reasonable likelihood of success based on Ground 4.

E. Petitioners Failed to Show that Simpson in View of Liddell Renders Obvious Challenged Claims 1–4, 6–13 (Ground 5)

1. Petitioners failed to show that a POSITA would have been motivated to combine Simpson and Liddell

Simpson and Liddell are directed to different types of vacuum cleaners, each solving different problems with their respective vacuum cleaners. Simpson (below, left) is directed to a circa 1928 non-cyclonic vacuum cleaner with a dust bag. Simpson describes an improved “portable electric cleaner” by providing “a straight tubular shank having its ends bent or beveled in opposite directions to substantially the same angle” such that “the cleaning tool on the forward end of the tubular shank can be manipulated the same as a cleaning tool on the forward end of a tubular handle.” Ex1007, 1:22–58. Liddell (below, right), by contrast, is directed to a bagless upright vacuum implementing cyclonic separation. Ex1005, Figs. 1a, 1b. Liddell describes a cyclonic stage design that reduces the “risk of cone blockage” while “also ensuring that the level of noise generated at the vortex finder is minimized.” Ex1005, 2:1–3.



Compare Ex1007, Fig. 8 (above, left), with Ex1005, Fig. 1b (above, right).

Each of Petitioners' alleged rationales for combining Simpson and Liddell are merely conclusory statements with no explanation for why the combination is a simple substitution, not a rationale for why a POSITA would employ the particular cyclonic separation arrangement of Liddell, which includes two cyclonic stages and dirt collection areas within the cyclone chamber, for the dust collection bag of Simpson. For example, Petitioners baldly claim that "POSAs would have understood that Simpson's non-cyclonic separator and Liddell's cyclonic separator were interchangeable solutions for separating dirt from air," Pet., 59, without explaining the modifications that would be needed to transform Simpson's bag type vacuum into a bagless cyclonic arrangement. Furthermore, even if a POSITA would

have been motivated to combine Simpson and Liddell, the resulting combination of Simpson and Liddell as outlined by Petitioners would have been both unwieldy and inoperable because there is no air flow path from the outlet of the second stage cyclones to the motor inlet.

Petitioners' citation to paragraphs 250–67 of Mr. Giachetti's Declaration does not cure these deficiencies. These paragraphs merely repeat the Petition's unsupported and conclusory statements without providing any explanation. For example, neither Petitioners nor Mr. Giachetti address why a POSITA, if motivated to modify Simpson, would have looked to Liddell, which describes an entirely different separation system, an entirely different dirt collection system, and an entirely different form factor.

Thus, Petitioners failed to meet their burden of showing that the Challenged Claims would have been obvious in view of Simpson in combination with Liddell under Ground 5.

F. Petitioners Failed to Show that Simpson in View of Liddell and Organ Renders Obvious Challenged Claims 1–13 (Ground 6)

1. Petitioners failed to show that a POSITA would have been motivated to combine Simpson, Liddell, and Organ

In Ground 6, Petitioners largely reference back to the analysis in Grounds 2 and 5. Pet., 71–73 (citing the analysis of Grounds 2 and 5). Thus, Ground 6 is deficient for the same reasons as explained above with respect to Grounds 2 and 5

and Petitioners' failure to meet their burden with respect to Grounds 2 and 5 apply equally to Ground 6. The Petition should be denied as to Ground 6 on this basis alone.

In addition, Petitioners have failed to establish a proper motivation to combine as to Simpson because they cite only to a section that discusses Liddell and Organ and provide no additional explanation. Petitioners simply allege that "POSAs would have been motivated to incorporate" Organ's features "in the Simpson and Liddell combination for the same reasons POSAs would have been motivated to combine Organ and Liddell." Pet., 52–53 (citing Section VIII.B). Petitioners also cite paragraphs 309–320 of Mr. Giachetti's Declaration, but these paragraphs merely repeat the conclusory statements made in the Petition.

Thus, Petitioners have not met their burden of showing that Challenged Claims 1–13 would have been obvious in view of Simpson in combination with Liddell and Organ under Ground 6 and the Board should not institute trial.

G. Petitioners Failed to Show that Simpson in View of Liddell and DC14Manual and Simpson in View of Liddell, Organ, and DC14Manual Renders Obvious Challenged Claim 10 (Ground 7)

In Ground 7, Petitioners challenge claim 10 only, which depends on independent claim 1, addressed above. Nothing in Ground 7 purports to solve the issues addressed above with respect to claim 1. Therefore, Petitioners' challenge to

claim 10 based on Simpson in view of Liddell and DC14Manual or Simpson in view of Liddell, Organ, and DC14Manual similarly fails.

H. Petitioners Failed to Show that Simpson in View of Liddell and Lim and Simpson in View of Liddell, Organ, and Lim Renders Obvious Challenged Claim 14 (Ground 8)

In Ground 8, for a third time, Petitioners combine multiple invalidity arguments into a single “ground”: (1) obviousness based on Simpson in view of Liddell and Lim, and (2) obviousness based on Simpson in view of Liddell, Organ, and Lim. Petitioners have not met their burden with respect to either obviousness argument.

1. Petitioners failed to show that a POSITA would have been motivated to combine Simpson, Liddell, and Lim or Simpson, Liddell, Organ, and Lim

In Ground 8, Petitioners largely reference their analysis for Grounds 4 and 5. Pet., 74 (citing the analysis of Grounds 4 and 5). Thus, Ground 8 is deficient for the same reasons as explained above with respect to Grounds 4 and 5 and Petitioners’ failure to meet their burden with respect to Grounds 4 and 5 apply equally to Ground 8. The Petition should be denied as to Ground 8 on that basis alone.

In addition, Petitioners failed to establish a proper motivation to combine as to Simpson because they cite only to a section that discusses Liddell, Organ, and Lim and provide no additional explanation. Petitioners simply allege that “POSAs would have been motivated to combine [Lim’s dirt collection chamber] with

Simpson and Liddell[,] and Simpson, Liddell, and Organ[,] for the same reasons POSAs would have been motivated to combine it with Liddell's upstream cyclone unit 101." Pet., 74 (citing Section VIII.D). Furthermore, even if a POSITA would have been motivated to combine Simpson, Liddell, and Lim, or Simpson, Liddell, Organ, and Lim, the resulting combination as set forth by Petitioners would have been inoperable because there is no air flow path from the outlet of the second stage cyclones to the motor inlet. Petitioners also cite paragraphs 327–329 of Mr. Giachetti's Declaration, but these paragraphs merely repeat the conclusory statements made in the Petition.

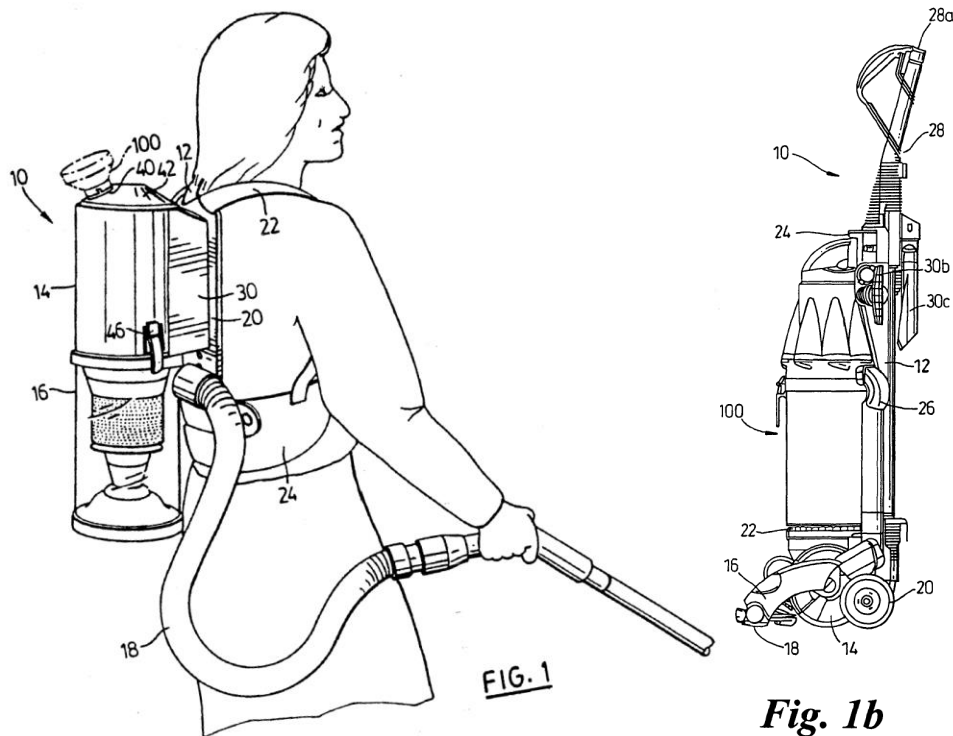
Thus, Petitioners failed to meet their burden of showing that Challenged Claim would have been obvious in view of Simpson in combination with Liddell and Lim or Simpson in combination with Liddell, Organ, and Lim under Ground 8 and the Board should not institute trial.

I. Petitioners Failed to Show that Soler in View of Liddell Renders Obvious Challenged Claims 1–4, 6–9, 11–13 (Ground 9)

1. Petitioners failed to show that a POSITA would have been motivated to combine Soler and Liddell

Soler and Liddell are directed to different types of vacuum cleaners, each solving different problems with their respective vacuum cleaners. Soler (below, left) is directed to a back-pack vacuum cleaner employing an "ergonomic" vacuum configuration with the motor mounted "at the top," close to the user's back. Ex1008,

7:6–27. Liddell (below, right), by contrast, is directed to an upright vacuum implementing cyclonic separation, Ex1005, Figs. 1a, 1b, that reduces the “risk of cone blockage” while “also ensuring that the level of noise generated at the vortex finder is minimized.” Ex1005, 2:1–3.



Compare Ex1008, Fig. 1 with Ex1005, Fig. 1b.

Each of Petitioners’ alleged rationales for combining Soler and Liddell are merely conclusory statements with no explanation for why the combination is a simple substitution, why the advantages of an openable bottom, a particular arrangement of downstream cyclones, and a set of handles as taught by Liddell would have been applicable to Soler’s back-pack vacuum, or why the substitutions would improve Soler’s vacuum. Petitioners also cite paragraphs 330–36 of Mr.

Giachetti's Declaration, but those paragraphs repeat the Petition's unsupported and conclusory statements without providing any additional explanation. For example, neither Petitioners nor Mr. Giachetti address why a POSITA, reading Soler—which is carried on a user's back—would have looked to Liddell, which describes an entirely different vacuum form factor and addresses an entirely different problem, much less been motivated to implement its teachings.

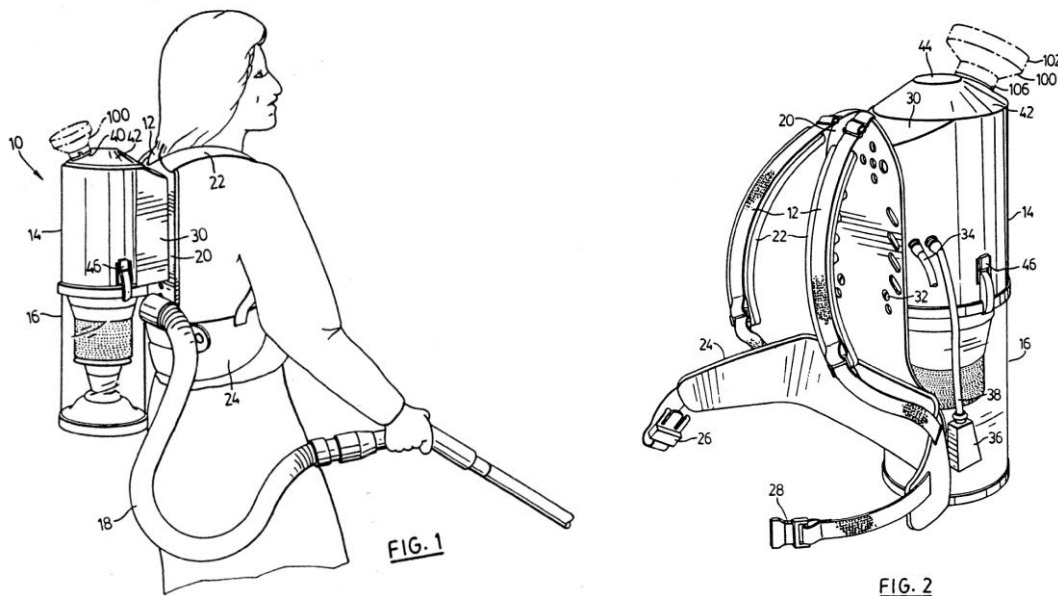
Thus, Petitioners failed to meet their burden of showing that the Challenged Claims 1–4, 6–9, and 11–13 would have been obvious in view of Soler in combination with Liddell under Ground 5.

**2. Neither Soler nor Liddell teaches or suggests a “hand
carriable surface cleaning apparatus” [1pre]/[12pre]/[13pre]**

Petitioners failed to meet their burden of showing that Soler in view of Liddell teaches or suggests the claimed “hand carriable surface cleaning apparatus.” Petitioners argue that the preambles of the Challenged Claims are not limiting. *See, e.g.,* Pet., 83. However, as discussed above, a “hand carriable surface cleaning apparatus” is a fundamental aspect of the Challenged Claims. The Petition fails to identify any structural feature in Soler or Liddell that would suggest that either Soler's backpack vacuum or Liddell's upright vacuum cleaner or a combination thereof is a hand carriable surface cleaning apparatus as recited.

Petitioners explicitly acknowledge that Soler's vacuum is a “backpack vacuum” that is designed to be “worn for an extended period of time” as a backpack.

Petitioners, however, argue that Soler's vacuum, meant to be worn on a user's back, is actually hand carryable if a user "hand carr[ies] Soler's vacuum by the harness 12, like an ordinary backpack can be hand carried by the strap." Pet., 83. This circular argument is entirely speculative. Nowhere does Soler describe that its backpack vacuum, designed to be worn on a user's back, is carryable by hand during use. To the contrary, Soler's backpack harness, which includes a back plate, two shoulder straps, and a waist strap, is designed specifically to be "comfortably mounted on the back of the operator," and does not include any components or handles that would allow a user to carry the vacuum by hand during use. Ex1008, 4:17–29.



Ex1008, Figs. 1, 2.

The cited portions of Mr. Giachetti's declaration merely repeat the Petition's conclusory statements without providing any explanation and should be given little weight. *E.g.*, Ex1002, ¶¶359–61; *Xerox*, IPR2022-00624, Paper 9.

Thus, Petitioners failed to meet their burden of showing that Challenged Independent Claims 1, 12, and 13 are rendered obvious by Soler in view of Liddell. Because Soler in view of Liddell does not render obvious claim 1 of the '607 Patent, the combination necessarily fails to render obvious dependent claims 2–4, 6–9, and 11, which depend on claim 1. As such, Petitioners failed to demonstrate a reasonable likelihood of success on any claim in Ground 1.

J. Petitioners Failed to Show that Soler in View of Liddell and Organ Renders Obvious Challenged Claims 4–5 (Ground 10)

1. Petitioners failed to show that a POSITA would have been motivated to combine Soler, Liddell, and Organ

In Ground 10, Petitioners largely reference back to the analysis in Grounds 2 and 9 for Challenged Claims 4–5. Pet., 104–05 (citing the analysis of Grounds 2 and 9). Thus, Ground 10 is deficient for the same reasons as explained above with respect to Grounds 2 and 9 and Petitioners' failure to meet their burden with respect to Grounds 2 and 9 apply equally to Ground 10. The Petition should be denied as to Ground 10 on this basis alone.

In addition, Petitioners failed to establish a proper motivation to combine as to Soler because they cite only to a section that discusses Liddell and Organ and

provide no additional explanation. Petitioners simply allege that “POSAs would have been motivated to add” features of Organ to the Soler and Liddell system “for the same reasons POSAs would have been motivated to add [those] feature[s] to Liddell alone.” Pet., 104 (citing Section VIII.B). Petitioners also cite paragraphs 434–442 of Mr. Giachetti’s Declaration, but these paragraphs merely repeat the conclusory statements made in the Petition.

Thus, Petitioners failed to meet their burden of showing that Challenged Claims 4–5 would have been obvious in view of Soler in combination with Liddell and Organ under Ground 10 and the Board should not institute trial.

K. Petitioners Failed to Show that Soler in View of Liddell and Lim Render Obvious Challenged Claim 14 (Ground 11)

1. Petitioners failed to show that a POSITA would have been motivated to combine Soler, Liddell, and Lim

In Ground 11, Petitioners largely reference back to the analysis for Grounds 4 and 9. Pet., 104–05 (citing the analysis of Grounds 4 and 9). Thus, Ground 11 is deficient for the same reasons as explained above with respect to Grounds 4 and 9 and Petitioners’ failure to meet their burden with respect to Grounds 4 and 9 apply equally to Ground 11. The Petition should be denied as to Ground 11 on this basis alone.

In addition, Petitioners failed to establish a proper motivation to combine as to Soler because they cite only to a section that discusses Liddell, Organ (which is

not mentioned in this ground), and Lim and provide no additional explanation. Petitioners simply allege that “POSAs would have been motivated” to combine features of Lim with the Soler and Liddell system “for the same reasons POSAs would have been motivated to combine it with Liddell alone.” Pet., 105 (citing Section VIII.D). Petitioners also cite paragraphs 443–445 of Mr. Giachetti’s Declaration, but these paragraphs merely repeat the conclusory statements made in the Petition.

Thus, Petitioners failed to meet their burden of showing that Challenged Claim 14 would have been obvious in view of Soler in combination with Liddell and Lim under Ground 11 and the Board should not institute trial.

VI. CONCLUSION

For the foregoing reasons, Petitioners failed to meet their burden of showing a reasonable likelihood that at least one of the Challenged Claims is unpatentable, and institution of IPR should be denied.

DATED: July 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 Preliminary Response is 6,991, according to the word count tool in Microsoft Word.

DATED: July 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 Preliminary Response and supporting materials upon Petitioners by email on July 11, 2024, to the following email addresses of record:

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