

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DENTAL RECYCLING NORTH AMERICA, INC.,
Petitioner,

v.

SOLMETEX, LLC,
Patent Owner.

PGR2023-00055
Patent 11,660,175 B2

Before JASON W. MELVIN, MICHAEL A. VALEK, and JAMIE T. WISZ,
Administrative Patent Judges.

VALEK, *Administrative Patent Judge.*

DECISION
Denying Institution of Post-Grant Review
35 U.S.C. § 324(a)

I. INTRODUCTION

Dental Recycling North America, Inc. (“Petitioner”) requests post grant review of claims 1–22 of U.S. Patent No. 11,660,175 B2 (“the ’175 patent,” Ex. 1001). Paper 2 (“Pet.”). Solmetex LLC (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Prelim. Resp.”).¹

Institution of post-grant review is authorized only when “the information presented in the petition . . . demonstrate[s] that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.” 35 U.S.C. § 324; 37 C.F.R. § 42.4. Upon considering the present record, we determine that Petitioner has not satisfied its burden to show that it is more likely than not that any of the challenged claims are unpatentable.

II. BACKGROUND

A. Real Parties in Interest

Petitioner and Patent Owner identify themselves as the only real parties in interest. Pet. 166; Paper 4, 1.

B. Related Matters

The parties identify *Solmetex, LLC v. Dental Recycling North America, Inc.*, No. 1:23-cv-602 (D. Del.), as involving the ’175 patent. Pet. 166; Paper 4, 1. Patent Owner further identifies the following related patent applications: 16/941,522 and 18/135,341. Paper 4, 1.

¹ Petitioner belatedly sought leave to reply to certain issues in the Preliminary Response almost two months after it was filed. *See* Ex. 3001, 1–2. We denied that request because Petitioner had not sought to explain the reason for its delay. *Id.* at 1 (citing 37 C.F.R. § 42.25(b) (“A party should seek relief promptly after the need for relief is identified. Delay in seeking relief may justify a denial of relief sought.”)).

C. The '175 Patent

The '175 patent issued from an application filed October 13, 2022. Ex. 1001, code (22). It claims priority to a series of applications, including application No. 16/941,522 filed July 28, 2020 (the “Parent application”), application No. 16/033,823 filed July 12, 2018 (the “Grandparent application”), and application No. 15/730,828 filed October 12, 2017 (the “Great-Grandparent application”). *Id.* at code (63).²

The '175 patent, titled “Detachable Recycling Container,” describes “dental amalgam recycling systems, useful for recycling particles from a dental liquid effluent drawn, for example, from a suctioning device.” Ex. 1001, codes (54, 57). According to the Specification, dental amalgam is a mixture of metals, including mercury, and EPA regulations require amalgam separators in dental offices. *See id.* at 1:48–2:47. To this end, the system described in the '175 patent includes “a self contained recycling container to facilitate customer regulatory compliance and environmental safeguards.” *Id.* at 1:37–40.

Figure 1 of the '175 patent, reproduced below, depicts an embodiment of the patent’s “particle removal and recycling apparatus.” Ex. 1001, 5:7–9.

² In addition to the Parent, Grandparent, and Great-Grandparent applications, the '175 patent claims priority to other earlier-filed applications. *See* Ex. 1001, codes (63), (60). As do the parties, we focus on the Parent, Grandparent, and Great-Grandparent applications because those applications are most directly related to the parties’ priority dispute. *See infra* § III.D.

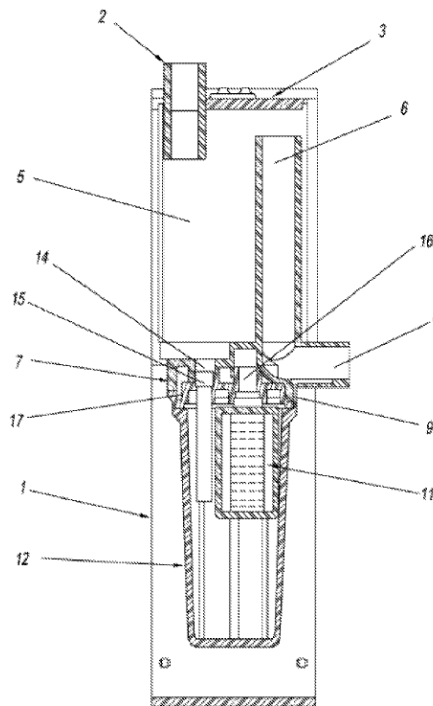


FIG. 1

Figure 1 is a schematic front view showing air-water separator tank 5 above detachable recycling container 12. *Id.* at 5:7–9, 6:53–67. Effluent is sucked into tank 5 through air-water separator tank inlet 2 at the top of the tank. *Id.* It passes through air-water separator tank outlet port 14 at the bottom of tank 5 and recycling container inlet port 15 on container top portion 9 into container 12 where “solids settle and accumulate in the bottom.” *Id.* at 6:63–7:5. The effluent is then drawn back up through restrictor 11 “where remaining non-settable fine particles are removed” and recycling container outlet port 16 on container top portion 9 to be “discharged from the apparatus via common outlet tube 8.” *Id.* at 7:5–26.

Figure 2 of the '175 patent, reproduced below, is a schematic side view of the apparatus in Figure 1. Ex. 1001, 5:10–12.

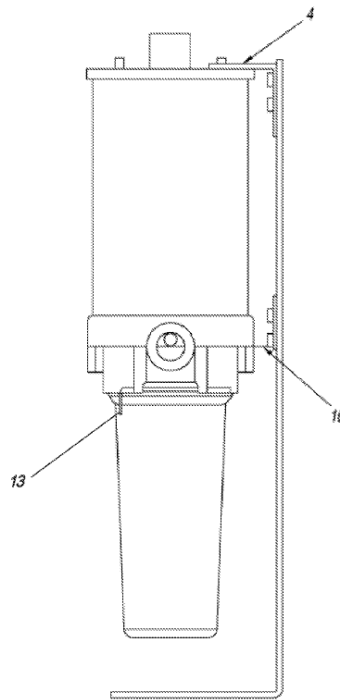


FIG. 2

Figure 2 shows “removable retaining pins 13 that engage radially protruding structures of the recycling container to ensure the recycling container does not detach from the air-water separation tank 5 when there is no vacuum in the system.” *Id.* at 7:29–34.

Figures 4A and 4B of the '175 patent, reproduced side-by-side below, are a schematic view and schematic perspective depiction of the recycling container. Ex. 1001, 5:21–25.

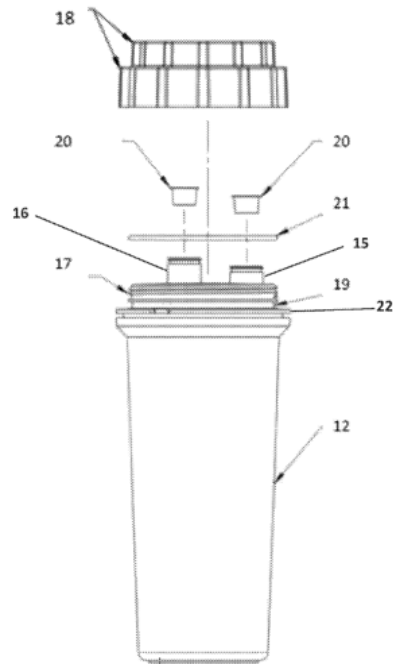


FIG. 4A

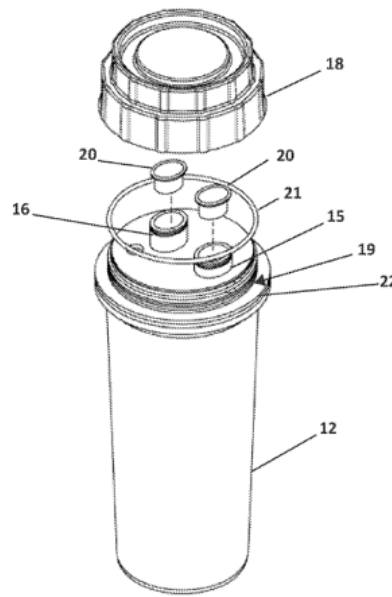


FIG. 4B

Figures 4A and 4B show that the container has a cylindrical upper region with a circular top surface from which inlet port 15 and outlet port 16 extend out. An O-ring 21 “is provided that fits into an O-ring groove 19 on the recycling container 12” this grove is located below the circular top surface and “above a flange structure 22 that protrudes radially away from the central axis of the main body” of the container. *Id.* at 7:64–67. As shown in Figure 2 above, the system is configured such that retaining pins 13 “fit within the region below the flange structure 22.” *Id.* at 7:67–8:2. When the container is ready for recycling, plugs 20 are placed into the inlet and outlet ports and cap 18 is threaded onto the top of the container “to achieve a strong seal.” *Id.* at 7:61–63; *see id.* at 8:17–24 (“[I]t is expected to be preferred that the recycling container with its enclosed restrictor unit be removed when full, or periodically replaced by fresh tanks” and the “spent

tank . . . can then be sent to a processing facility for proper disposal . . . and recovery of precious metal such as silver.”).

D. The Challenged Claims

Petitioner challenges claims 1–22 of the ’175 patent. Claim 1 is representative for purposes of this decision. It is reproduced below with the same bracketed numbering used in the Petition to identify particular limitations.

1. [pre] A detachable dental-amalgam container for use with a dental amalgam separation system, the dental amalgam separation system having a system inlet for receiving dental amalgam effluent, an air-water separation tank for holding the dental amalgam effluent received from the system inlet, a system outlet, a vacuum source acting on the system outlet for moving fluid from the dental amalgam effluent toward the system outlet, and at least one retaining pin for use with the detachable dental-amalgam container, the detachable dental-amalgam container comprising:

[a] a main body having a central axis and an interior volume for receiving the dental amalgam effluent from the air-water separation tank;

[b1] a container top portion located at a top of the main body, the container top portion including a generally cylindrical upper region having a circular upper surface from which a container inlet port and a container outlet port extend away from the main body, the container outlet port being positioned nearer to the central axis of the main body than the container inlet port, the container inlet port being positioned nearer to a periphery of the circular upper surface than the container outlet port,

[b2] the container top portion further including at least one radially protruding structure located below the generally cylindrical upper region, the at least one radially protruding structure for engaging the at least one retaining pin of the dental amalgam separation system to ensure the detachable dental-

amalgam container does not become detached from the dental amalgam separation system when there is no pressure being applied from the vacuum source, the at least one radially protruding structure being located radially outward relative to the periphery of the circular upper surface;

[c] a container inlet conduit extending downwardly from the container top portion and into the interior volume, the container inlet conduit being coupled to the container inlet port, the container inlet conduit and the container inlet port for transferring the dental amalgam effluent from the air-water separation tank to the interior volume of the main body; and

[d] a restrictor located within the interior volume of the main body and fluidically coupled to the container outlet port, the restrictor configured to remove fine particles from the dental amalgam effluent as fluid from the dental amalgam effluent is moved toward the container outlet port due to the vacuum source.

Ex. 1001, 8:66–9:46.

As shown above, element 1[b2] recites that the container top portion includes “at least one radially protruding structure” located outward from the periphery of the upper surface and below the generally cylindrical upper region, which is configured to engage the retaining pin “to ensure the detachable dental-amalgam container does not become detached from the dental amalgam separation system when there is no pressure being applied from the vacuum source.” Ex. 1001, 9:22–33. The other two independent claims, i.e., claims 12 and 18, recite similar language. *Id.* at 10:55–65, 12:4–14. Herein, we refer to these elements as the “radially protruding structure” limitations.

E. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–22 are unpatentable on the following grounds:

Ground ³	Claim(s) Challenged	35 U.S.C. § ⁴	Reference(s)/Basis
1	1–3, 6–8, 12, 15, 17, 18, 20	§§ 102, 103	Cartridge 2 ⁵
2	1–3, 6–8, 12, 15, 17, 18, 20	§ 103	Cartridge 2 with the NXT System
3	1, 3–22	§§ 102, 103	NXT Container ⁶
4	1, 3–22	§§ 102, 103	NXT Container with the NXT System

³ The Petition asserts that some claims are anticipated by “or, in the alternative, rendered obvious” over the cited art, presenting both arguments as a single ground. *See* Pet. 36, 69–70, 126. For ease of reference, we do the same here.

⁴ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended several provisions of 35 U.S.C., including § 103, that became effective on March 16, 2013, which predates the earliest application to which the ’175 patent claims priority. *See* Ex. 1001, codes (60, 63). Thus, the AIA version of 35 U.S.C. § 103 applies.

⁵ “Cartridge 2” refers to a product sold by Petitioner that “is designed to connect to the Solmetex NXT system [i.e., the ‘NXT System’] as the collection container.” Pet. 25–26. Petitioner alleges it “started selling its Cartridge 2 in the U.S. on May 18, 2020.” *Id.* at 25. Petitioner cites Exhibits 1003, 1004, 1006, and 1008 to support its contentions regarding Cartridge 2. *See id.* at 25–27.

⁶ “NXT Container” refers to containers sold by Patent Owner for use with the NXT System. Pet. 28–31. Petitioner alleges Patent Owner “started selling its NXT System [including the NXT Container] in the U.S. in June 2017.” *Id.* at 28. Petitioner cites Exhibits 1003, 1004, 1008, and 1019 to support its contentions regarding NXT Container and the NXT System.

Ground ³	Claim(s) Challenged	35 U.S.C. § ⁴	Reference(s)/Basis
5	1–3, 6–8, 10, 12, 15, 17–20	§§ 102, 103 ⁷	Liu ⁸
6	1–8, 10, 12–15, 17–20, 22	§ 103	Liu, Boyd ⁹

Pet. 36. Petitioner supports its contentions with the Declaration of Dr. Jason Janét (Ex. 1003) and the Declaration of Darwin Moreira (Ex. 1004), among other evidence. Patent Owner supports its contentions with the Declaration of Charles A. Garris, Jr., Ph.D. (Ex. 2001), among other evidence.

III. ANALYSIS

A. Eligibility for Post-Grant Review

To be eligible for post-grant review the challenged patent must contain a claim with an effective filing date on or after March 16, 2013. *See* AIA §§ 3(n)(1), 6(f)(2)(A). In addition, “[a] petition for a post-grant review may only be filed not later than the date that is 9 months after the date of the grant of the patent.” 35 U.S.C. § 321(c); *see also* 37 C.F.R. § 42.202(a) (accord).

Petitioner certifies that the ’175 patent is eligible for post-grant review because it “issued May 30, 2023, less than 9 months ago, and the earliest

⁷ Although the grounds table on page 36 of the Petition only refers to obviousness as the basis for Ground 5, the argument section presents Ground 5 as anticipated by or in the alternative obvious over Liu. *See* Pet. 126–157. Accordingly, we understand Petitioner to assert both section 102 and 103 as bases for Ground 5.

⁸ CN 102989232 A, published Mar. 27, 2013 (Ex. 1010). The Petition relies on a certified translation of this Chinese language reference included in Exhibit 1010.

⁹ CA 2,356,902 A1, published Mar. 5, 2001 (Ex. 1011).

possible priority date on the face of the '175 patent is October 12, 2016.”

Pet. 1–2. We agree with Petitioner, and Patent Owner does not dispute, that the '175 patent is eligible for post-grant review.

B. Level of Ordinary Skill in the Art

Relying on the testimony of its declarant, Petitioner contends a person of ordinary skill (“POSA”) “would have been an individual with at least a bachelor’s degree in mechanical engineering, or at least 3 years of experience designing or manufacturing vacuums, filters, medical devices, or the related components.” Pet. 22 (citing Ex. 1003 ¶¶ 94–95). Patent Owner does not respond to Petitioner’s contention in its Preliminary Response, but asks its declarant to apply Petitioner’s proposed level of skill in the art in his analysis. *See* Ex. 2001 ¶ 86.

Because Petitioner’s proposed level of ordinary skill in the art appears to be consistent with the cited prior art and is undisputed on this record, we adopt it for purposes of this decision.

C. Claim Construction

In AIA proceedings we interpret a claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b). Under this standard, claims are construed “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*

Petitioner contends that “[a]ll terms of the '175 patent should be given their plain and ordinary meaning as understood by a POSA,” but does not propose any express claim construction for consideration. *See* Pet. 22–23.

Petitioner further asserts that the preambles of the independent claims are limiting. *Id.* at 23–25.

Patent Owner argues “that claim construction is not necessary at this time,” but urges that “in the event the Board determines that claim construction is necessary, Petitioner’s proposal to construe the preambles of the independent claims as limiting should be rejected.” Prelim. Resp. 65.

We need not determine whether the preambles of the independent claims are limiting to reach the outcome in this decision. Accordingly, no express claim construction is necessary here. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

D. Grounds 1–4 and Petitioner’s Related Priority Challenge

Grounds 1–4 are based on sales of Petitioner’s and Patent Owner’s products, which Petitioner contends began in May 2020 (Cartridge 2) and June 2017 (NXT System/Container) respectively. Pet. 25, 28. According to Patent Owner, the dates of those sales do not qualify these products as prior art because the ’175 patent “is entitled to an effective filing date of at least as early as October 12, 2017, which is the filing date of the Great-Grandparent ’828 application.” Prelim. Resp. 31.¹⁰ However, Petitioner contends “[t]he ’175 patent is not entitled to priority before its filing date on October 13, 2022” because: (1) new matter relating to the “radially protruding structure”

¹⁰ As Patent Owner explains, if the ’175 patent is entitled to an effective filing date of October 12, 2017, the alleged sales of the NXT System and Container in June 2017 “fall within the 1-year grace period pursuant to 35 U.S.C. § 102(b)(1)” and are not prior art. Prelim. Resp. 74–75.

limitations was added during prosecution of the '175 patent; and (2) even if it was not new matter, there is a break in the chain of priority relating to the version of Figure 4A filed with the Parent application. Pet. 1, 12–25. Thus, the unpatentability arguments in Grounds 1–4 require Petitioner to prevail on at least one of its two arguments challenging the priority claim. As explained below, Petitioner has not shown that it is more likely than not that it will do so.

1. Petitioner's new matter argument

Petitioner's new matter argument centers on the “radially protruding structure” limitations. As Petitioner points out, [t]he original specification of the '175 patent filed on October 13, 2022—i.e., the specification inherited from the earlier applications,” including the Great-Grandparent Application¹¹—“does not mention the term ‘radially protruding structure,’ nor the related term ‘flange.’” Pet. 6 (citing Ex. 1002, 203–215).

During prosecution of the application that issued as the '175 patent, the Examiner objected to the drawings in the specification, stating that “[t]he drawings must show every feature of the invention specified in the claims” and explaining that corrected drawings with “reference numerals” referring to certain recited claim features, including the “radially protruding structures,” were required. Ex. 1002, 157. The Examiner cautioned that “[n]o new matter should be entered.” *Id.* The Examiner concurrently rejected

¹¹ Because the priority dispute turns on whether the challenged claims are entitled to the benefit of the Great-Grandparent Application's filing date, we refer to the original description and figures of that application in our discussion below.

the claims for lack of enablement, stating that “[t]he specification fails to sufficiently disclose and describe” the same features. *Id.* at 158.

The applicants responded by submitting amended drawings that added additional reference numerals to point out features in the original drawings. Ex. 1002, 103–104, 151–153. In particular, Figure 4A was amended as shown in the side-by-side comparison of the original figure on the left to the amended figure on the right below.

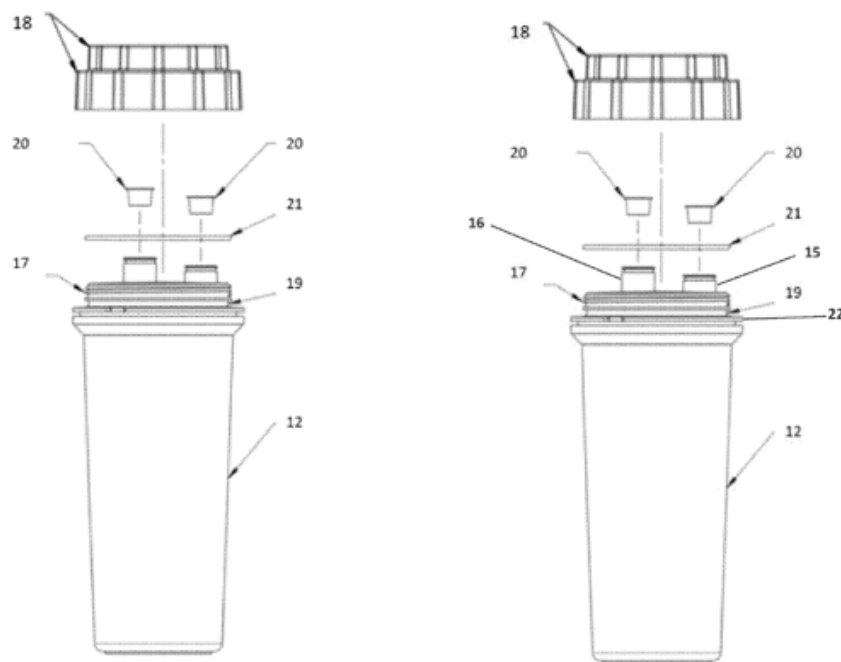


FIG. 4A

FIG. 4A (amended)

As can be seen in the side-by-side comparison above, the structure of the container in the amended figure is identical to the original figure, but reference numerals 15, 16, and 22 have been added with lead lines pointing to features in that structure. *See also id.* at 151 (noting changes to Fig. 4A). Lead line 22 shows flange 22, i.e., the “radially protruding structure” recited in the challenged claims. Lead line 22 was also added to the perspective view of the container in Figure 4B. *Id.* In addition, Figure 2 was amended to

change the arrowed line pointing to retaining pin 13 in the original version of that figure to a lead line. *Id.*

The applicants also met with the Examiner to explain that “the horizontal segment of the L-shaped retaining pin 13 illustrated in FIGURE 2 fits within the region directly below the flange structure 22, which radially protrudes away from the central axis of the container 12 as shown in FIGURES 4A and 4B.” Ex. 1002, 98 (describing interview); *see also id.* at 87 (annotated versions of original Figs. 2 and 4A presented during interview). The specification was amended consistent with that explanation. *Id.* at 149 (amendment to paragraph 96), 34 (amendment to paragraph 84). In doing so, the applicants represented that no new matter was being added because the amendments were supported by the original specification and drawings. *Id.* at 33–34, 97. The Examiner accepted these amendments and allowed the claims. *See id.* at 78 (indicating claims allowable in response to amendment), 14 (notice of allowability).

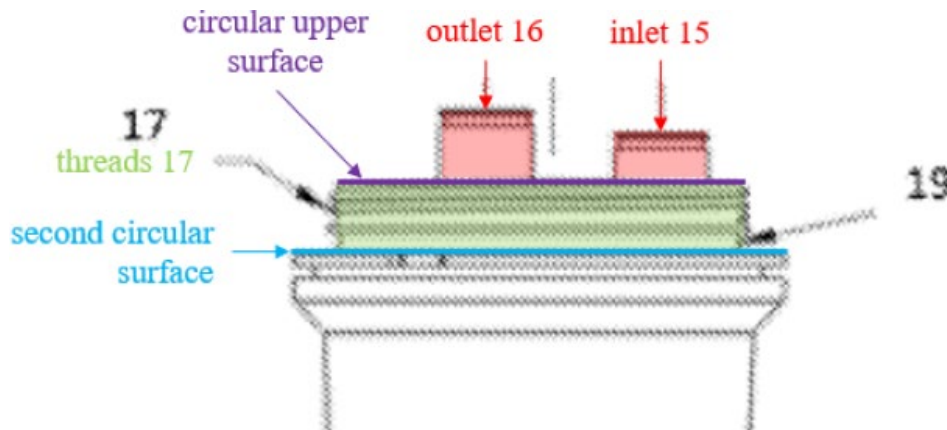
Petitioner contends that the amendments to the specification entered during prosecution of the ’175 patent are new matter. *See* Pet. 7–10 (describing amendments above as “significant additions . . . to disclose these features for the first time”). Petitioner asserts that the original versions of Figures 4A–B and Figure 2, and the related description in the Great-Grandparent Application, do not sufficiently describe the “radially protruding structure” limitations because, in Petitioner’s view:

these materials do not disclose the combination of a ‘radially protruding structure for engaging the at least one retaining pin.’ Indeed, the supposed ‘radially protruding structure’ and the ‘retaining pin’ are ***never depicted together***. Rather, the former is purportedly depicted (by a thin, barely-visible, unlabeled line of pixels) only in Figs. 4A and 4B, while the latter is depicted

(though barely-visible and largely obscured) only in Fig. 2. Similarly, in the written description, these structures are *never described together* and, more to the point, these structures are certainly *never described as cooperating to secure the container in place*, as the claims require.

Pet. 14–15 (citing Ex. 1003 ¶¶ 61–66). For this reason, Petitioner urges that Patent Owner “had to add new matter during prosecution” of the ’175 patent and “tacitly admitt[ed] that the specification was deficient” by amending it as described above. *Id.* at 16–17.

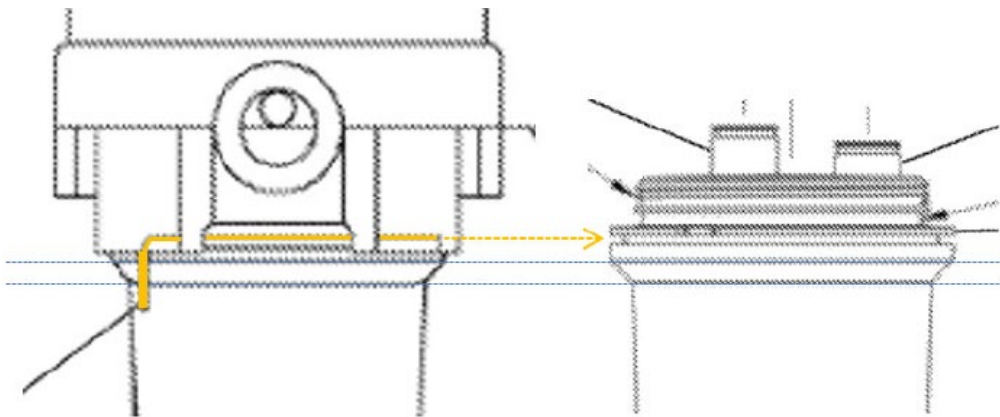
Patent Owner disagrees, urging that the original disclosure in the Great-Grandparent Application describes “a container top portion including a radially protruding flange^[12] that is located radially outward from the periphery of the upper surface” as recited in the challenged claims. Prelim. Resp. 31. Patent Owner illustrates its position with color-coded excerpts of original figures 2, 4A–B, and 5B, including the excerpt of Figure 4A reproduced below. *See id.* at 32–36.



¹² Patent Owner uses the terms “radially protruding structure” and “flange” interchangeably, noting that “a ‘flange’ is an example of a ‘radially protruding structure.’” Prelim. Resp. 31 n.3.

In the excerpt above, Patent Owner annotates the circular upper surface of the container top portion in purple and a second circular surface below the upper surface in blue. *Id.* This second circular surface is located below the generally cylindrical upper region of the container defined by threads 17 (annotated in green) and extends outward radially relative to the periphery of the circular upper surface. *Id.* at 33. As such, Patent Owner contends that a POSA would have understood the original versions of Figures 4A–B and 5B to describe a radially protruding flange configured as recited in the challenged claims with a groove below it. *See id.* at 33–35 (providing similar annotations for excerpts of Figures 4B and 5B).

In addition, Patent Owner offers color-coded excerpts of original Figure 2 to illustrate the operation of retaining pin 13. *See* Prelim. Resp. 38–41. For example, Patent Owner provides the following side-by-side comparison of Figures 2 and 4A. *Id.* at 41.



Patent Owner’s comparison shows excerpts of Figures 2 and 4A “scaled and aligned side-by-side” with the L-shaped retaining pin 13 in Figure 2 (left side) highlighted in yellow. *Id.* at 40–41. According to Patent Owner, “[b]ased on the position of the removable retaining pin 13 in FIG. 2 relative to the recycling container 12, a [POSA] would understand that the retaining

pin 13 fits within the groove under the radially protruding flange shown in FIG. 4A.” *Id.* at 40 (citing Ex. 2001 ¶ 114). Thus, Patent Owner urges that the original figures and related description in the Great-Grandparent application is sufficient to provide written description for the “radially protruding structure” limitations. *Id.* at 42 (citing *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1565 (Fed. Cir. 1991)). Patent Owner also disputes Petitioner’s characterization of the prosecution history, urging that it does not support Petitioner’s position, but rather that “the Examiner determined that Patent Owner’s amendments did not introduce new matter.” *See id.* at 54–57.

Based on the record before us, Patent Owner has the better position. It is well settled that the original drawings may themselves be sufficient to provide description for later-filed claims. *Vas-Cath*, 935 F.2d at 1565 (holding that “drawings alone may provide a ‘written description’ of an invention as required by § 112”). That is the case here with respect to the original figures submitted with the Great-Grandparent application. We agree with Patent Owner and Dr. Garriss that original Figures 4A–B and 5B show a flange or “radially protruding structure” configured as in the challenged claims. Ex. 2001 ¶¶ 106–113. Moreover, the original description in the Great-Grandparent application describes “removable retaining pins 13” that “ensure the recycling container,” i.e., container 12 in Figures 4A–B, “does not detach from the air-water separation tank 5 when there is no vacuum in the system.” Ex. 1002, 213 (¶ 92). Based on this description and the depiction of retaining pin 13 in the original Figure 2, a POSA would have understood that the pins engage with the radially protruding structure to hold the container in place as recited in the challenged claims. Ex. 2001 ¶ 114.

Petitioner’s argument that the original figures do not depict the radially protruding structure and retaining pins working together to hold the container in place is unpersuasive. Patent Owner has sufficiently demonstrated that a POSA would have understood how the structures in original Figures 2 and 4A interact based on a side-by-side comparison of the same. *See* Pet. 38–43; Ex. 2001 ¶ 114. Indeed, the applicants made a similar comparison during prosecution, which proved persuasive to the Examiner. Ex. 1002, 87, 98. The Petition provides no reason to doubt that a POSA would understand the original figures and description just as Patent Owner contends.

Moreover, contrary to Petitioner’s arguments, the fact that the specification and drawings were amended does not mean that Patent Owner had to add new matter to overcome the Examiner’s rejections. *See* Pet. 16–17. In this case, the amendments to the specification during prosecution of the ’175 patent made the operation of the retaining pin and radially protruding structure, as shown by the original figures, even clearer. But that does not mean that the original description was inadequate.

On this point, the facts of *Vas-Cath* are instructive. There, the priority claim in a later-filed utility patent was premised on the figures in an earlier-filed design patent and the Federal Circuit noted that the utility patent’s drawings contained additional details, including “minor shading and lead lines and reference numerals not present in the design application drawings.” *Vas-Cath*, 935 F.2d at 1558 n.2. Even so, the earlier drawings were sufficient to describe structures recited in the utility patent claims.¹³ So too,

¹³ The Federal Circuit remanded to the district court to assess the possibility that the drawings may provide an adequate description for some claims, but

here, the minor differences between the original figures and those in the '175 patent do not defeat the priority claim because the original description “reasonably conveys to the artisan that the inventor had possession at that time [i.e., the filing date of the Great-Grandparent application] of the later claimed subject matter.” *Id.* at 1563 (quoting *Ralston Purina Co. v. Far-Mar-Co., Inc.*, 772 F.2d 1570, 1575 (Fed. Cir. 1985)).

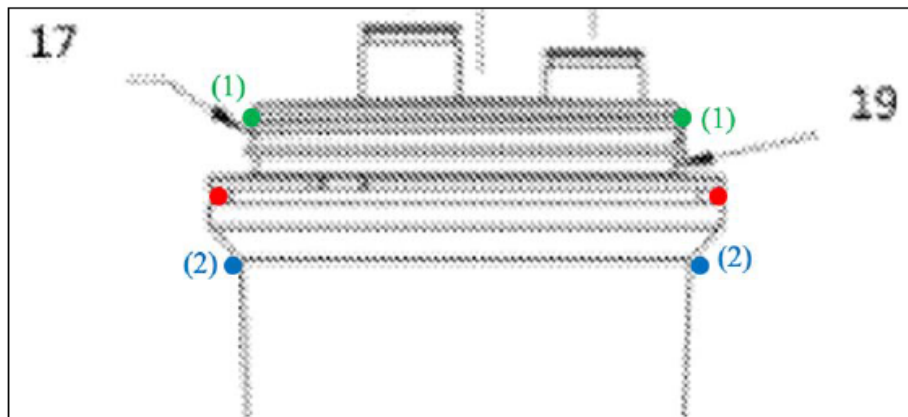
Nor was the applicants’ decision to amend the specification akin to “tacitly admitting” that the original description was deficient. *See* Pet. 17. Not all amendments to the specification constitute new matter. *See, e.g., Kennecott Corp. v. Kyocera Int’l, Inc.*, 835 F.2d 1419, 1422 (Fed. Cir. 1987) (observing precedent holding that “a subsequent . . . change in an original disclosure does not necessarily make that original disclosure fatally defective”); MPEP § 2163.06 (“[I]nformation contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter.”).

Indeed, the interaction between the Examiner and the applicants recorded in prosecution history here further supports that these amendments did not add new matter. The Examiner objected to the drawings and invited the applicants to submit new drawings with new reference numerals, while simultaneously cautioning against adding new matter. Ex. 1002, 157–158. The applicants responded to that invitation, while also providing an explanation of where the “radially protruding structure” limitations were described in the original description and making clear that the proposed

not others, e.g., those reciting a “range of variation” in the dimensions of certain structures. *See Vas-Cath*, 935 F.2d 1565–67.

amendments did not add new matter. *See id.* at 34, 84, 87–88, 97–99. The fact that the Examiner accepted that explanation further undermines Petitioner’s new matter argument. Nevertheless, Petitioner suggests that the applicants should have argued against the rejection while avoiding any amendments to the specification. *See* Pet. 16–17. But avoiding clarifying amendments that do not add new matter would seem to be counterproductive and, in any event, the mere fact that the applicants chose a different prosecution strategy than that suggested by Petitioner’s argument is no reason to void the priority claim.

Finally, Petitioner’s suggestion that the original drawings are unclear because the retaining pins could interact with other parts of the container top portion in Figure 4A is unpersuasive. *See* Pet. 15–16. Petitioner offers the following annotated version of Figure 4A to illustrate its position. *Id.*



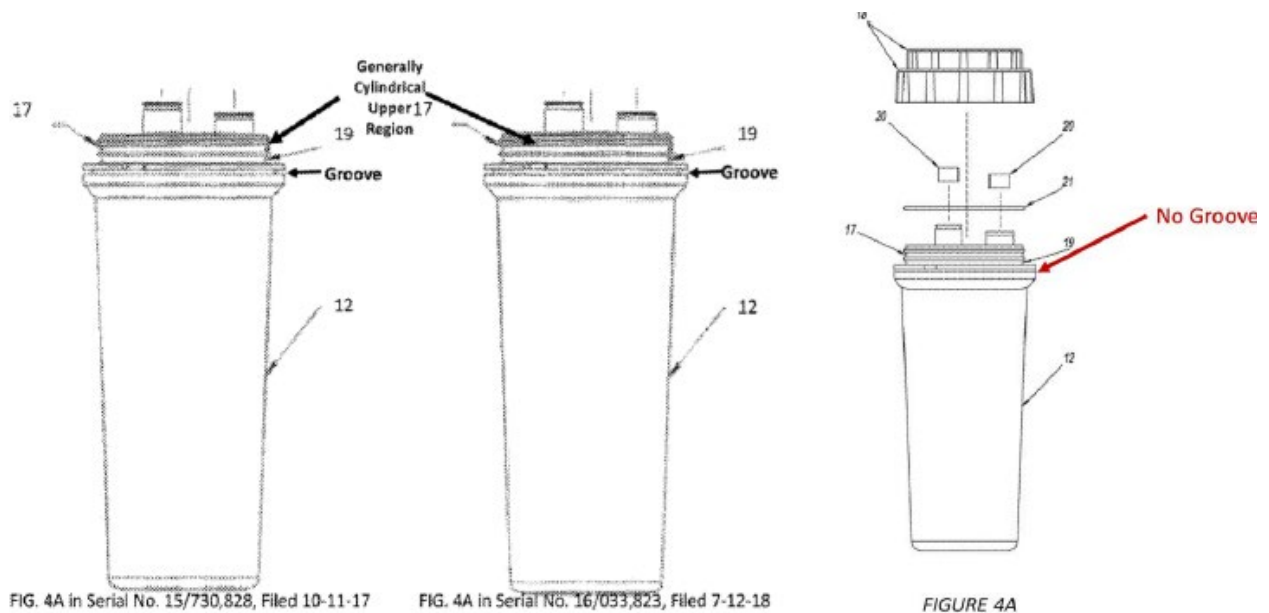
In the annotated figure above, Petitioner and Dr. Janét identify three locations, marked in green, red, and blue, they contend the retaining pins could be inserted. *Id.* at 15 (citing Ex. 1003 ¶¶ 67–71). However, we credit Dr. Garriss’s testimony that based on a side-by-side comparison of Figures 2 and 4A there is no such ambiguity because a POSA would have understood that the pins engage the groove formed by the radially protruding structure at

the location marked in red above. Ex. 2001 ¶¶ 124–132. Moreover, even if we accept Petitioner’s position that the pins could also engage with other structures at the green and blue locations in its annotated figure, that fact does not demonstrate that the recited interaction between the retaining pins shown in Figure 2 and the radially protruding structure shown in Figures 4A–B and 5B is insufficiently described.

For these reasons, Petitioner has not shown that it is more likely than not it will prevail on its new matter argument.

2. Petitioner’s break in the chain of priority argument

Petitioner contends that “[t]he ’175 patent cannot claim priority to its parent application (the ’522 application) for an independent reason,” i.e., that “the ’522 application breaks the priority chain” because the version of Figure 4A that was filed with the Parent application does not show the groove shown in Figure 4A of the earlier-filed applications. Pet. 19–20. Petitioner provides the following side-by-side comparison of Figure 4A from the Great-Grandparent, Grandparent, and Parent applications to illustrate its position. *Id.* at 20.



Petitioner’s annotated comparison shows that the versions of Figure 4A that were originally filed with the Great-Grandparent and Grandparent applications (shown on the left and in the middle) depict the groove corresponding to the recited “radially protruding structure,” whereas the version of Figure 4A filed with the Parent application (shown on the right of Petitioner’s comparison) does not. For this reason, Petitioner contends that “even if the original application had provided adequate support . . . the [Parent application] certainly did not, and [the] Challenged Claims cannot claim priority to the [Parent application].” *Id.* at 21–22 (citing *Droplets, Inc. v. E*TRADE Bank*, 887 F.3d 1309, 1317 (Fed. Cir. 2018) and *Hollmer v. Harari*, 681 F.3d 1351, 1358 (Fed. Cir. 2012)).

Patent Owner acknowledges that the groove is obscured in the version of Figure 4A that was originally submitted with the Parent application and that “to ensure the groove is clearly illustrated” the applicants submitted the earlier-filed version of that figure with the application leading to the ’175 patent. Prelim. Resp. 57–58 (quoting Ex. 1002, 346 (Preliminary amendment

identifying this issue to the Examiner)). But Patent Owner argues this discrepancy does not break the chain of priority for several reasons, including that (1) the Parent application “incorporates by reference these same earlier related applications containing the better-quality version of FIG. 4A, which more clearly illustrates the groove and radially protruding structure,” and (2) “the better quality version of FIG. 4A that was filed with [the ’175 patent] and the priority applications” has now also been added to the Parent application, which remains pending. *See id.* at 58–62. According to Patent Owner, 37 C.F.R. § 1.57(b) provides for the correction of such inadvertent omissions and “all conditions of 37 C.F.R. § 1.57(b) are satisfied for both the ’175 Patent and the Parent ’522 Application” thus there is “no so-called ‘break’ in the priority chain.” *Id.* at 64–65.

Based on the current record, Patent Owner has the better position. There is no dispute that the version of Figure 4A that was originally-filed with the Grandparent and Great-Grandparent applications depicts a groove below the generally cylindrical upper portion of the container.¹⁴ *See* Pet. 20 (annotated figure); Ex. 2003, 407 (FIG. 4A in Grandparent application); Ex. 2004, 329 (FIG. 4A in Great-Grandparent application). As explained above, that groove corresponds to and provides written description support for the “radially protruding structure” limitations. *Supra* § III.D.1.

We agree with Patent Owner that the Parent application incorporates by reference the originally-filed version of Figure 4A from the Grandparent

¹⁴ As Patent Owner points out, the same groove is also depicted in the version of Figure 4A in other priority applications. *See, e.g.*, Ex. 2006, 34 (provisional application 62/414,712, filed Oct. 29, 2016); Ex. 2005, 24 (provisional application 62/406,990, filed Oct. 12, 2016).

and Great-Grandparent applications. “To incorporate material by reference, the host document must identify with detailed particularity what specific material it incorporates and clearly indicate where that material is found.” *Paice LLC v. Ford Motor Co.*, 881 F.3d 894, 907–08 (Fed. Cir. 2018) (“*Paice*”) (quoting *Adv. Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000)). Here, the Parent application cites and claims priority to the Grandparent and Great-Grand parent applications, identifying both applications by application number.¹⁵ Ex. 2002, 668 (preliminary amendment to specification paragraph 1). The Parent application further states that all “patents and patent applications cited in the specification are hereby incorporated herein by reference in their entirety for the disclosure for which they are cited.” *Id.* at 698 (§ 102). Thus, the Parent application identifies with sufficient particularity what material it is incorporating, i.e., the entirety of the written description, which was cited to support the priority claim, and where that material is found, i.e., in the Grandparent and Great-Grandparent applications.¹⁶ Accordingly, there is no break in the continuity

¹⁵ These facts distinguish the cases Petitioner cites. *See Droplets*, 887 F.3d at 1317 (break in chain where the application lacked a “specific reference” claiming priority to the earlier filed application under 35 U.S.C. § 120); *Hollmer*, 681 F.3d at 1355, 1358 (break in chain where incorporation statement in earlier applications did not identify priority application by serial number and ambiguously “present[ed] several potential documents for incorporation”).

¹⁶ We agree with Patent Owner that the incorporation language in this case is similar to that held to be sufficient in *Paice*. *See* 881 F.3d at 907 (statement that a patent “is incorporated herein by this reference” was sufficiently detailed to incorporate the entirety of that patent’s written description for purposes of priority claim). The main difference is that the Parent application uses a blanket statement to incorporate all cited patents and

of the disclosure because the Parent application incorporates the originally-filed version of Figure 4A by reference.

Moreover, even if there was no incorporation by reference, there would still be no break in the continuity of the disclosure because the Parent application has been amended to include the same version of Figure 4A found in the '175 patent. *See* Ex. 2002, 50 (amended Fig. 4A), 81 (explaining that “for purposes of consistency” applicants are “now making the same drawing and specification changes” made during prosecution of the '175 patent). To the extent the groove was “inadvertently omitted” from the version of Figure 4A initially filed with the Parent application, the amendment to correct that omission was authorized under 37 C.F.R. § 1.57(b) because the “inadvertently omitted portion of the . . . drawing[] is completely contained in the prior-filed application,” i.e., the Grandparent and Great-Grandparent applications, and the amendment was made prior to the close of prosecution of the Parent application. *See* 37 C.F.R. § 1.57(b). Thus, there is no break in the continuity of disclosure because the Parent application now includes the same version of Figure 4A found in the '175 patent.

For these reasons, Petitioner has not shown that it is more likely than not it will prevail on its break in the chain of priority argument. Because Petitioner has not shown that it is more likely than not to prevail on either of

patent applications, as opposed to an individual statement for each such reference. On the facts of this case, that distinction does not impact the effectiveness of the language to incorporate by reference the written description of the Grandparent and Great-Grandparent applications, both of which were specifically cited to support the priority claim.

its arguments challenging the priority claim, Petitioner has not met the burden for institution of Grounds 1–4.

E. Grounds 5 and 6 – anticipation/obviousness over Liu alone and Liu in combination with Boyd

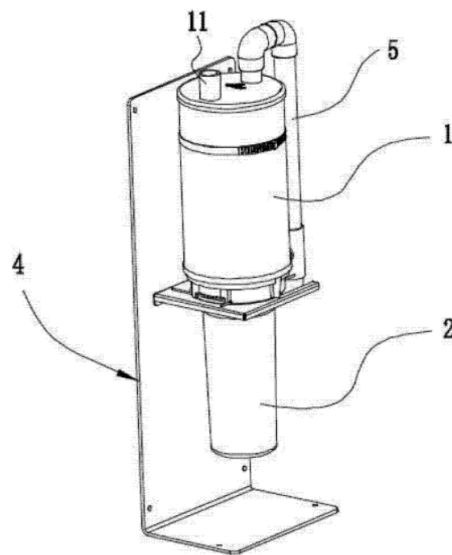
Grounds 5 and 6 are premised on Liu and Boyd, which Petitioner contends are “prior art to the ’175 patent regardless of the proper priority date of the claims.” Pet. 32, 34. We provide an overview of those references below followed by our analysis of the asserted grounds.

1. Overview of the asserted art

a. Liu (Ex. 1010)

Liu, titled “Heavy metal separation device,” “discloses a heavy metal separation device, which comprises a waste collecting tank, a heavy metal receiving bottle, and a solid filter” that is “connected to an oral treatment machine” to reduce “the content of heavy metals in sewage generated during oral treatment.” Ex. 1010, codes (54, 57).

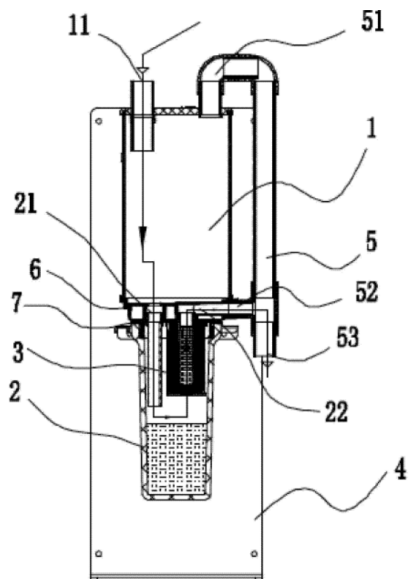
Figure 1 of Liu, reproduced below, is a perspective view of Liu’s heavy metal separation device. Ex. 1010 ¶ 13.



The figure above depicts waste collecting tank 1 fixed to mounting bracket 4 with heavy metal receiving bottle 2 located below the waste collecting tank.

Id. ¶¶ 17–18. Sewage water from a dental treatment machine flows into waste collecting tank 1 through sewage water inlet 11. *Id.* ¶ 17.

Figure 2 of Liu, reproduced below, is a schematic sectional view of Liu’s heavy metal separation device. Ex. 1010 ¶ 14.



The figure above shows heavy metal receiving bottle 2 “connected with the waste collecting tank 1 through the first sealed connector 6 and the second sealed connector 7 in the form of an interface and is fastened with a buckle.” *Id.* ¶ 18. “[T]he upper end of the heavy metal receiving bottle 2 has a sewage inlet 21 connected to the bottom of the waste collecting tank 1” and a “sewage discharge port 22 connected to a negative pressure suction machine.” *Id.* “[S]olid filter 3 is arranged inside the heavy metal receiving bottle 2” to effectively filter heavy metals contained in the sewage and collect them in the bottle. *Id.* ¶ 19.

Figure 3 of Liu, reproduced below, “is a schematic diagram of the solid filter . . . installed on the heavy metal receiving bottle (including the first sealed connector).” Ex. 1010 ¶ 15.

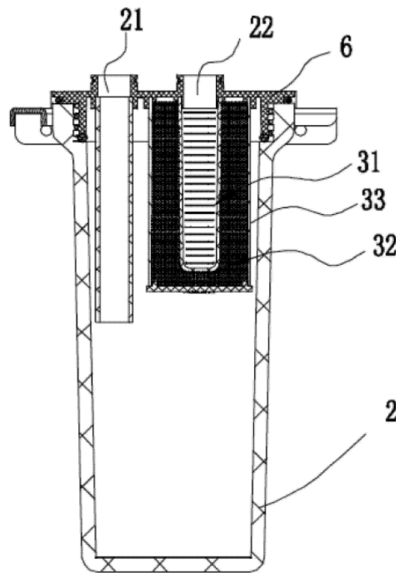


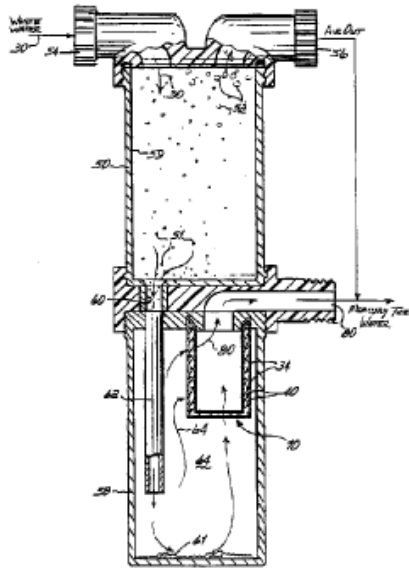
Figure 3 above provides a closer view of the lower portion of Figure 2, including heavy metal receiving bottle 2 and the inside of the filter, which is composed of “two filter layers 31, 33 and a sand layer 32.” *Id.* ¶ 19. Figure 3 does not show waste collecting tank 1 or second sealed connector 7.

b. Boyd (Ex. 1011)

Boyd, titled “Device and Method For Treating Dental Waste Streams,” describes a “device for safe, efficient, and easy decontamination of waste streams, particularly dental waste streams.” Ex. 1011, codes (54, 57).

Figure 5 of Boyd, reproduced below, is a schematic sectional view of an embodiment of Boyd’s device. Ex. 1011, 6.¹⁷

¹⁷ As does Petitioner, we cite to the page numbers of the original document, rather than the page number in the exhibit label.



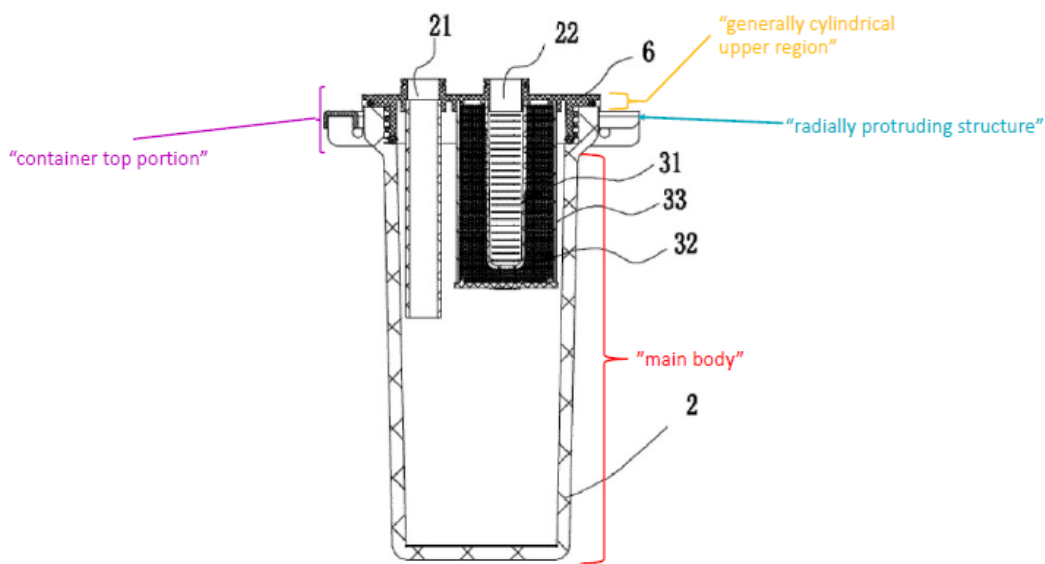
The figure above depicts sedimentation chamber 58 located below and connected to air/liquid separation chamber 50. *Id.* at 8. According to Boyd, “[t]he sedimentation chamber 58 is easily detached, for example, by threads, pins and a gasket system, from the air/liquid separation chamber 50 and from inflow and outflow lines.” *Id.* at 10.

2. Analysis

In Ground 5, Petitioner asserts that claims 1–3, 6–8, 10, 12, 15, and 17–20 are anticipated by or in the alternative obvious over Liu alone. Pet. 126. In Ground 6, Petitioner asserts that claims 1–8, 10, 12–15, 17–20 and 22 are obvious over Liu and Boyd. *Id.* at 158. For both grounds, Petitioner relies on Liu as allegedly disclosing the “radially protruding structure” recited in the independent claims. *See id.* at 133–135 (claim 1), 145–147 (claim 12), 153–155 (claim 18); 158–159 (Ground 5 asserting it “would have been obvious to a POSA to combine the container structure from Liu, including the ‘radially protruding structure,’ with the retaining pin disclosed in Boyd.”). Because Petitioner’s arguments regarding the claims challenged in Grounds 5 and 6 turns on the sufficiency of its showing that

Liu discloses a “container” having a “radially protruding structure” as recited in the independent claims, we focus our analysis there.

Petitioner contends that the top portion of the heavy metal receiving bottle depicted in Figure 3 of Liu includes a “radially protruding structure” as recited in the challenged independent claims. *See* Pet. 133–135 (claim 1), 145–147 (claim 12), 153–155 (claim 18). Petitioner illustrates its position by annotating Figure 3 of Liu, as shown below. *See id.* at 134.¹⁸

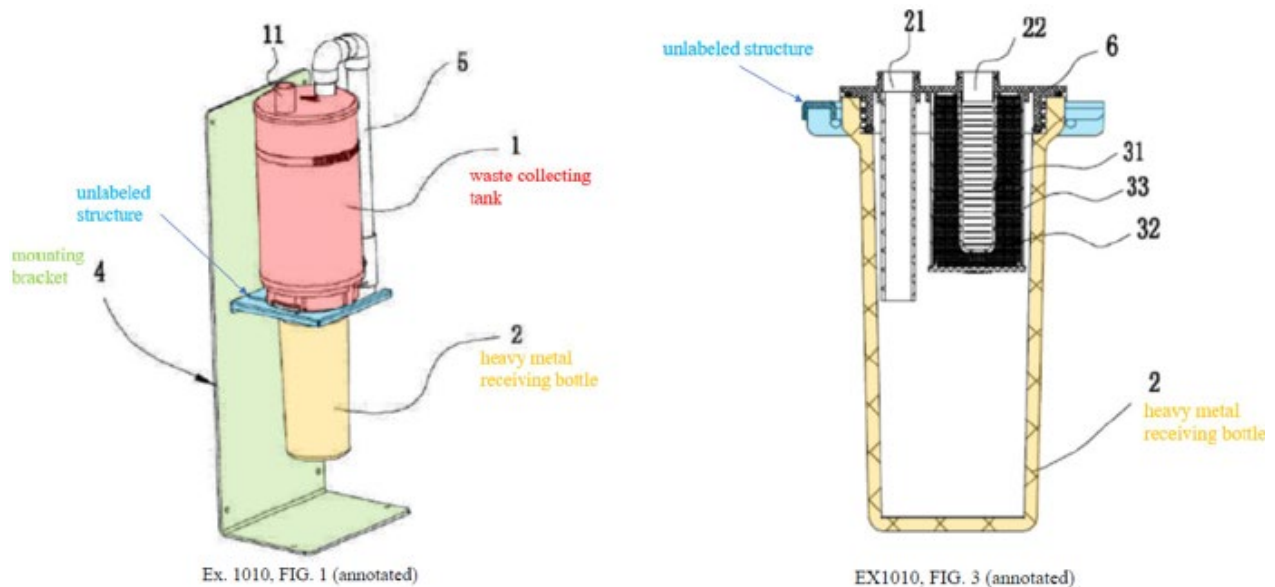


Petitioner annotates Figure 3 to identify a “generally cylindrical upper region” (annotated in yellow) above a “main body” (annotated in red) with the alleged “radially protruding structure” (annotated in blue) located between them. According to Petitioner, the structure marked in blue is part of heavy metal receiving bottle 2, i.e., the recited “detachable dental-

¹⁸ Although the Petition includes several different versions of these annotations, Petitioner consistently identifies the same portion of Liu Figure 3 as the “radially protruding structure.” *See* Pet. 132–135 (mapping for claim 1), 144–147 (mapping for claim 12), 152–157 (mapping for claim 18).

amalgam container,” and “extends radially outward relative to the periphery of the” circular upper surface of the bottle. *See id.* at 133–135.

Patent Owner disputes Petitioner’s contention that Liu discloses the claimed “radially protruding structure.” *See* Prelim. Resp. 76–86. According to Patent Owner, “the structure identified by Petitioner and Dr. Janét in FIG. 3 of Liu . . . is **not** part of Liu’s heavy metal receiving bottle 2 (the purported detachable dental-amalgam container) and therefore cannot correspond to the claimed radially protruding structure.” *Id.* at 77–78. Patent Owner provides annotated versions of Figures 1 and 3 of Liu, reproduced below, to illustrate its position. *See id.* at 78, 80.

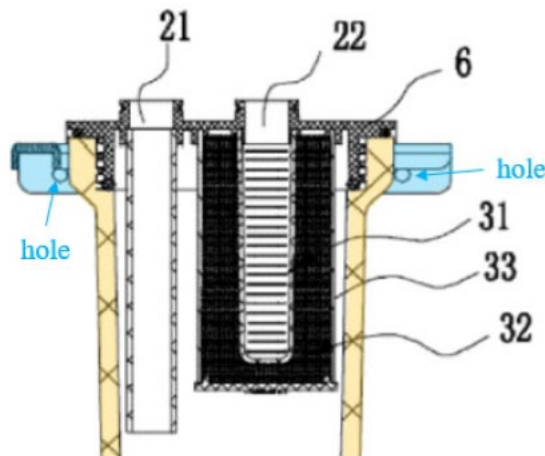


Patent Owner annotates the figures above using blue to mark what it calls the “unlabeled structure” between waste collecting tank 1 (annotated in red) and heavy metal receiving bottle 2 (annotated in yellow). As shown above, the “unlabeled structure” in Patent Owner’s annotated version of Figure 3 is the same structure in Figure 3 of Liu that Petitioner maps to the claimed “radially protruding structure.” In Patent Owner’s view, a POSA would have

understood that this “unlabeled structure” is not part of the heavy metal receiving bottle 2, i.e., what Petitioner identifies as the “container” in the challenged claims, but rather “is attached to and cantilevered from the mounting bracket 4” in Figure 1 and “surrounds a portion of the heavy metal receiving bottle 2.” *Id.* at 79 (citing Ex. 2001 ¶¶ 162–164).

Patent Owner offers reasoning to support its interpretation of Liu. First, Patent Owner explains that the heavy metal receiving bottle 2 in Figure 3 is shown “with cross hatching, while portions of the blue unlabeled structure either have no cross-hatching or different cross-hatching.” Prelim. Resp. 79. According to Patent Owner, a POSA “would understand that if a structure is shown in a cross-sectional view (like Liu’s FIG. 3), then the same cross-hatching would be used to identify all parts of that structure that are sectioned and visible in the cross-sectional view.” *Id.* at 80 (citing Ex. 2001 ¶ 166). Thus, urges Patent Owner, “the blue unlabeled structure cannot be a part of the [yellow] heavy metal receiving bottle 2 because it is not identified with the same cross-hatching.” *Id.*

Second, Patent Owner explains that Figure 3 of Liu “illustrates two holes on the opposite ends of the unlabeled structure” as shown by the annotated figure below. Prelim. Resp. 81.



EX1010, FIG. 3 (excerpted and annotated)

The figure above is an excerpt of the upper portion of Figure 3 of Liu showing circles in the blue “unlabeled structure” portion of that figure, which Patent Owner identifies as holes. According to Patent Owner, a POSA would understand these holes “to be the locations where the unlabeled structure is coupled to the mounting bracket 4.” *Id.* (citing Ex. 2001 ¶¶ 167–168). For these reasons, Patent Owner urges that

[b]ased on the drawings, a [POSA] would understand that the allegedly radially protruding structure identified by Petitioner is cantilevered from and fixed to the mounting bracket 4, whereas the heavy metal receiving bottle 2 is removeable. Most importantly, the unlabeled blue structure is **not** part of Liu’s heavy metal receiving bottle 2—it is a separate and distinct component of the system that is fixed to the mounting bracket.

Id. at 82–83 (citing Ex. 2001 ¶ 169). Patent Owner further contends there is “nothing else on Liu’s heavy metal receiving bottle 2 [that] could conceivably correspond to the claimed radially protruding structure.” *Id.* at 83 (citing Ex. 2001 ¶ 170).

On the current record, Patent Owner has the better position. Petitioner’s showing for the “radially protruding structure” is premised

entirely on its annotations to Figure 3 of Liu. *See* Pet. 133–135 (claim 1), 145–147 (claim 12), 153–155 (claim 18). Petitioner assumes, without any supporting reference in the text or explanation from Dr. Janét, that the structure marked in blue in the annotated figure is part of the heavy metal receiving bottle 2. On the current record, Patent Owner’s interpretation, i.e., that the blue-marked structure is *not* part of the heavy metal receiving bottle, is more plausible than Petitioner’s assumption that it is. Indeed, Patent Owner offers multiple reasons supporting its interpretation that are premised on specific aspects of Liu’s figures (e.g., the different cross-hatching and holes in Figure 3) and supported by detailed explanation from Dr. Garris. *See* Ex. 2001 ¶¶ 166–169.

In contrast, the testimony from Dr. Janét identifying the alleged “radially protruding structure” on Liu’s container is cursory and makes the same unexplained assumption as the Petition. *See* Ex. 1003 ¶¶ 217–218, 237–238, 249–250. Such testimony is not persuasive to meet Petitioner’s burden for institution. *See Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (PTAB Aug. 24, 2022) (precedential) (conclusory and unsupported declaration testimony entitled to little weight).

Because Petitioner has not sufficiently shown that the only structure it identifies as the “radially protruding structure” is part of the alleged “container,” Petitioner has not shown that it is more likely than not that Liu discloses a “radially protruding structure” as recited in the independent claims. While Petitioner generally asserts that the challenged claims would have alternatively been obvious over Liu, or the combination of Liu and

Boyd in Ground 6,¹⁹ the Petition presents no obviousness theory for the “radially protruding structure” element beyond its argument that the blue-marked structure in Figure 3 of Liu discloses such. Moreover, as Patent Owner points out, none of the other features shown in Figure 3 of Liu appear to teach or suggest a “radially protruding structure” that is part of the alleged “container” and configured as recited in the independent claims. *See* Prelim. Resp. 83–84 (citing Ex. 2001 ¶ 170). Accordingly, Petitioner has not met the burden for institution of post grant review as to the independent claims in Grounds 5 and 6. Petitioner’s showing for the dependent claims is deficient for the same reasons.

IV. CONCLUSION

Based on the current record, Petitioner has not shown that it is more likely than not that any of the challenged claims are unpatentable on any of the grounds in the Petition. Accordingly, institution of post grant review is denied.

V. ORDER

Accordingly, it is:

ORDERED that the Petition is denied, and no post grant review is instituted.

¹⁹ As it relates to the independent claims, Ground 6 relies on Boyd only for its teachings regarding the recited “retaining pin.” *See* Pet. 158–159. Petitioner does not identify any alleged “radially protruding structure” in Boyd, but instead asserts that the challenged claims would have been obvious over the combination of “the container structure from Liu, including the ‘radially protruding structure,’ with the retaining pin disclosed in Boyd.” *Id.* at 158.

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For PETITIONER:

Andrew D. Gish
Ryan Iwahashi
Edward L. Tulin
GISH PLLC
andrew@gishpllc.com
ryan@gishpllc.com
edward@gishpllc.com

For PATENT OWNER:

Angelo J. Christopher
Jennifer Hayes
Daniel Burnham
Allison Strong
NIXON PEABODY LLP
achristopher@nixonpeabody.com
jenhayes@nixonpeabody.com
dburnham@nixonpeabody.com
astrong@nixonpeabody.com