

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TELEBRANDS CORP.,
Petitioner,

v.

TINNUS ENTERPRISES, LLC,
Patent Owner.

Case PGR2017-00015
Patent 9,527,612 B2

Before MICHAEL W. KIM, FRANCES L. IPPOLITO, and
KEVIN W. CHERRY, *Administrative Patent Judges*.

CHERRY, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 328(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

Telebrands Corp. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) for post-grant review of claims 1–4 of U.S. Patent No. 9,527,612 B2 (Ex. 1001, “the ’612 patent”). Pursuant to 35 U.S.C. § 324, we determined that Petitioner showed that the information presented in the Petition, if such information was not rebutted, would demonstrate that it is more likely than not that claim 3 of the ’612 patent was unpatentable for indefiniteness. Paper 16 (“Inst. Dec.”). We did not institute post-grant review of claims 1, 2, and 4 or on all of the grounds set forth in the Petition. Inst. Dec. 24. Tinnus Enterprises, LLC (“Patent Owner”) filed a Patent Owner Response (Paper 23, “PO Resp.”). Petitioner filed a Reply. Paper 28 (“Reply”).

On April 24, 2018, the Supreme Court held that a decision to institute under 35 U.S.C. § 314, the statute governing the related type of post-grant proceedings known as *inter partes* reviews, may not institute on less than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1369–70 (2018). On May 3, 2018, we determined that SAS governed post-grant reviews as well, and issued an order instituting on all of claims and all of the grounds of the Petition as suggested by SAS. Paper 30 (“SAS Order”).

On May 31, 2018, we issued a revised schedule. Paper 36 (“Order”). As we explained in our Order, Patent Owner had informed us that it would not participate any further in these proceedings. Order 3–4. We allowed Patent Owner to rely on its arguments submitted in its Preliminary Response (Paper 13, “Prelim. Resp.”) regarding the previously un-instituted grounds and claims. *Id.* at 4. We further allowed Petitioner to submit a Supplemental Reply (Paper 37, “Supp. Reply”). Petitioner also filed a

Motion to Exclude. Paper 39 (“Mot.”). An oral hearing was held on August 31, 2018. Paper 86 (“Tr.”).¹

We issue this Final Written Decision pursuant to 35 U.S.C. § 328(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine Petitioner has not proven by a preponderance of the evidence that claims 1–4 of the ’612 patent are unpatentable. See 35 U.S.C. § 326(e). Petitioner’s Motion to Exclude is *dismissed as moot*.

A. Related Proceedings

We are informed that the ’612 patent is involved in the following two federal district court cases:

- *Tinnus Enterprises, LLC v. Telebrands Corp.*, Civil Action No. 6:17-cv-00170-RWS-JDL (E.D. Tex.); and
- *Tinnus Enterprises, LLC v. Wal-Mart Stores, Inc. d/b/a Wal-Mart*, Civil Action No. 6:17-cv-00361-RWS-JDL (E.D. Tex.)

Pet. 3; Paper 12, 2–3. The ’612 patent was also subject to a petition for post-grant review in PGR2017-00051, which we denied.

Related U.S. Patent No. 9,051,066 B1 (“the ’066 patent”) is the subject of post-grant review in PGR2015-00018 involving the same parties (“the -00018 PGR”). The Board instituted trial in the -00018 PGR on January 4, 2016. See *Telebrands Corp. v. Tinnus Enterprises, LLC*, Case PGR2015-00018 (PTAB Jan. 4, 2016) (Paper 7) (“-00018 PGR DI.”). A final written decision in PGR2015-00018 issued on December 30, 2016

¹ The original hearing was scheduled for August 13, 2018 (see Papers 41, 44), but Petitioner was unable to attend. A rescheduled hearing was held on August 31, 2018. See Paper 43.

finding claims 1–6, 8, and 10–14 of the ’066 patent unpatentable for indefiniteness under 35 U.S.C. § 112(b). *See Telebrands Corp. v. Tinnus Enterprises LLC*, Case PGR2015-00018 (PTAB Dec. 30, 2016) (Paper 75) (“-00018 PGR FD”). The Federal Circuit reversed and remanded the -00018 PGR FD determining that the claims were not indefinite. *See Tinnus Enterprises, LLC v. Telebrands Corp.*, 733 F. App’x 1011 (Fed. Cir. May 30, 2018) (non-precedential).

The ’066 patent is also involved in federal district court proceedings, *Tinnus Enterprises, LLC, et al. v. Telebrands Corp., et al.*, 6:15-cv-00551 RWS-JDL (E.D. Tex.) and *Tinnus Enterprises, LLC, et al. v. Telebrands Corp.*, Civil Action No. 6:17-cv-00199-RWS-JDL. Paper 12, 3–4. The Federal Circuit affirmed the district court’s decision granting a preliminary injunction in the 15-cv-000551 proceeding in *Tinnus Enterprises, LLC v. Telebrands Corp.*, 846 F.3d 1190 (Fed. Cir. 2017).

Additionally, related U.S. Patent Nos. 9,242,749 B2 (“the ’749 patent”) and 9,315,282 B2 (“the ’282 patent”) are the subject of post-grant review petitions filed by Petitioner in PGR2016-00030 and PGR2016-00031, respectively. *See* Paper 12, 2. We instituted post-grant reviews involving both patents on February 21, 2017. *See Telebrands Corp. v. Tinnus Enterprises, LLC*, Case PGR2016-00030 (PTAB Feb. 21, 2017) (Paper 16) (instituting post-grant review as to the ’749 patent) (“-00030 DI”); *Telebrands Corp. v. Tinnus Enterprises, LLC*, Case PGR2016-00031 (PTAB Feb. 21, 2017) (Paper 15) (instituting post-grant review as to the ’282 patent) (“-00031 DI”). On February 7, 2018, we entered Final Written Decisions in both cases finding that Petitioner had failed to show any of the challenged claims were unpatentable. *See Telebrands Corp. v. Tinnus*

Enterprises, LLC, Case PGR2016-00030 (PTAB Feb. 7, 2018) (Paper 91) (finding all claims of the '749 patent had not been shown to be unpatentable as obvious) (“-00030 FD”); *Telebrands Corp. v. Tinnus Enterprises, LLC*, Case PGR2016-00031 (PTAB Feb. 7, 2018) (Paper 88) (finding all of the challenged claims of the '282 patent had not been shown to be unpatentable) (“-00031 FD”). These decisions are currently on appeal to the Federal Circuit. See *Tinnus Enterprises, LLC v. Telebrands Corp.*, Nos. 2017-1175, 2018-1681, 2018-1682 (Fed. Cir.).

We are informed that Petitioner is named as a defendant in federal district court cases involving the '749 and '282 patents—*Tinnus Enterprises, LLC v. Telebrands Corp.*, Civil Action No. 6:16-cv-00033-RWS-JDL (E.D. Tex.) and *Tinnus Enterprises, LLC v. Wal-Mart Stores, Inc.*, Civil Action No. 6:16-cv-00034-RWS-JDL (E.D. Tex.). Paper 12, 3–4. The Federal Circuit issued summary orders affirming the district court’s grant of a preliminary injunction against Petitioner regarding the '749 and '282 patents—*Tinnus Enterprises, LLC v. Telebrands Corp.*, 709 F. App’x 704 (Fed. Cir. Jan. 16, 2018) (non-precedential); *Tinnus Enterprises, LLC v. Telebrands Corp.*, 708 F. App’x 1019 (Fed. Cir. Jan. 16, 2018) (non-precedential). On November 21, 2017, a jury issued a verdict in favor of Patent Owner finding infringement, no invalidity, and damages of \$12.3 million for the '749 patent. Ex. 2028.

There were also three additional petitions for post-grant review filed—PGR2017-00024, PGR2017-00040, and PGR2017-00052. Paper 12, 2. PGR2017-00024 and PGR2017-00052 challenged U.S. Patent No. 9,533,779 B2. PGR2017-00040 challenged U.S. Patent No. 9,682,789 B2. We denied institution of all of these petitions.

B. The '612 Patent

The '612 patent, titled “**SYSTEM AND METHOD FOR FILLING CONTAINERS WITH FLUIDS**,” issued December 27, 2016, from U.S. Application No. 14/678,878 (“the '878 application”), filed April 3, 2015. Ex. 1001, at [54], [10], [21], [22]. The '878 application is a continuation of U.S. Application No. 14/492,487, filed on September 22, 2014, which issued as the '066 Patent. *Id.* at [63]. The '612 patent further claims the benefit of U.S. Provisional Application No. 61/942,193 filed on February 20, 2014 and U.S. Provisional Application No. 61/937,083 filed on February 7, 2014. *Id.* at [60].²

The '612 patent is directed generally to systems and methods for filling containers with fluids. Ex. 1001, at [54]. Figure 1 of the '612 patent is reproduced below.

² Because the earliest possible effective filing date for the '612 patent is after March 16, 2013 (the effective date for the first inventor to file provisions of the America Invents Act) and this petition was filed within 9 months of its issue date, the '612 patent is eligible for post-grant review. See 35 U.S.C. § 321(c).

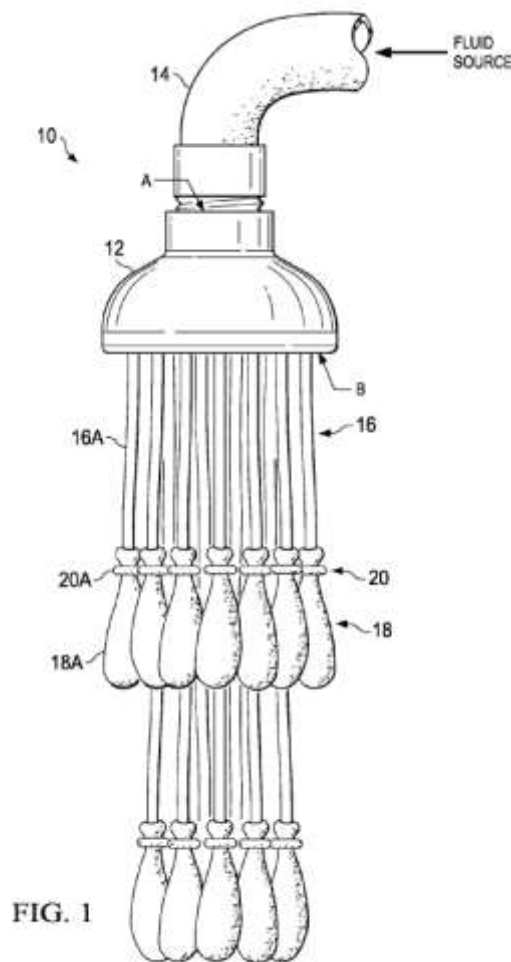


Figure 1, reproduced above, is a simplified diagram illustrating an exemplary embodiment of system 10 for filling containers with fluids. *Id.* at 2:36–37. As shown in Figure 1, system 10 includes housing 12 removably attached to hose 14 at end A and to a plurality of hollow tubes 16 at end B. *Id.* at 2:38–40. A plurality of containers 18, such as water balloons, may be clamped to plurality of tubes 16 using elastic valves 20, which may comprise elastic fasteners such as O-rings. *Id.* at 2:55–63, 3:10–12. In one embodiment, housing 12 or tubes 16 may be shaken to detach filled containers 18 from tubes 16. *Id.* at 3:57–62. Elastic valves 20 or fasteners

may constrict the necks of containers 18, sealing them, when the containers slide off tubes 16. *Id.* at 4:5–9.

C. Illustrative Claims

Claim 1 is the sole independent claim. Claims 2–4 depend from claim 1. Claim 1 and claim 3, which depends from claim 1, are illustrative of the claimed subject matter, and are reproduced below:

1. An apparatus comprising:
 - a housing comprising a plurality of holes extending through the housing;
 - a plurality of hollow tubes, each hollow tube attached to the housing at a respective one of the holes;
 - a plurality of containers, each container removably attached to a respective one of the hollow tubes; and
 - a plurality of elastic fasteners, each elastic fastener clamping a respective one of the plurality of containers to a respective tube, and each elastic fastener configured to restrict detachment of its respective container from its respective tube and to automatically seal its respective container upon detachment of the container from its respective tube, the restriction of each elastic fastener being sufficiently limited to permit its respective container to detach from its respective tube by at least partially filling the container with water;
- wherein the apparatus is configured to fill the containers substantially simultaneously with water.

Id. at 6:37–55.

3. The apparatus of claim 1, wherein at least first and second ones of the plurality of containers are disposed sufficiently close to each other such that they press against each other, regardless whether the first and second ones of the plurality of containers are in a filled state or an unfilled state.

Id. at 6:58–64.

D. Prosecution History

The '878 application was filed on April 3, 2015 as a continuation of the application that issued as the '066 Patent. Ex. 1001, at [54]. The '878 application included original application claims 1–28. Ex. 1008, 194–197. On January 4, 2016, after two preliminary amendments that amended the original application claims 1–28, Applicant filed a preliminary amendment cancelling claims 1–28 and adding four new claims, including one independent claim, new application claim 29. Ex. 1008, 87–90, 144–150, 166–170. Application claim 29, as filed, is similar to issued claim 1, except for the final limitations. *Id.* at 88. On November 9, 2016, the Examiner entered an Examiner's Amendment and Notice of Allowability ("Notice"). *Id.* at 16. Application claim 29 showing the amendments made by the Examiner in the Notice is reproduced below:

29. An apparatus comprising:
 - a housing comprising a plurality of holes extending through the housing;
 - a plurality of hollow tubes, each hollow tube attached to the housing at a respective one of the holes;
 - a plurality of containers, each container removably attached to a respective one of the hollow tubes; and

a plurality of elastic fasteners, each elastic fastener clamping a respective one of the plurality of containers to a respective tube, and each elastic fastener configured to restrict detachment of its respective container from its respective tube and to automatically seal its respective container upon detachment of the container from its respective tube, the restriction of each elastic fastener being sufficiently limited to permit its respective container to detach from its respective tube by at least partially filling the container with water; ~~upon one or more of (1) at least partially filling the container with fluid and (2) shaking the housing;~~

wherein the apparatus is configured to fill the containers substantially simultaneously with ~~fluid~~ water.

Ex. 1008, 19–20.

In the Reasons for Allowances, the Examiner stated

None of the prior art teaches the subject matter in . . . [the “Sufficiently Limited” Limitation³] which is interpreted in accordance with *In re Swinehart*, 439 F.2d 210, 213 (CCPA 1971) and MPEP 2114. Boise (US 2008/0121309) and Saggio . . . disclose devices which simultaneously fill multiple detachable water balloons. . . . Donaldson . . . discloses a balloon (10) with an elastic band (20) that seals the balloon after the balloon is detached by moving mechanical components (column 4, line 65 - column 5, line 6). Lee . . . also teaches a balloon (1) with a band (2) which seals the balloon after the

³ We will refer to the final portion of the elastic fastener limitation— “the restriction of each elastic fastener being sufficiently limited to permit its respective container to detach from its respective tube by at least partially filling the container with water”—as the “Sufficiently Limited Limitation” in the discussion below.

balloon is detached manually using the front end of the guide pipe (4) (paragraph 0033). Lee further teaches that the rubber band has a “high elastic force” (paragraph 0033), and thus it is clear that elastic force varies among rubber bands. Immel (US 6,053,816) at column 2, lines 23-53 and Lee (US 2004/0159968) at paragraph 0032 further evidence that elastic force varies among rubber bands. Because it is not true that all elastic bands have the same elastic force as an inherent property, there is no basis to conclude that the bands disclosed in the prior art would be capable of functioning as claimed. Multiple variables would determine whether or not a device would achieve this function, including the elastic force of the band, the relative size of the band as compared to the outer diameter of the tube, the shape of the tube, the frictional coefficient of the outer surface of the tube, the size of the balloon which in turn determines the weight of the water which can be held, and so on. There is no basis to conclude that the elastic bands and balloons of Billon, Donaldson, or Lee would detach and seal in the manner required by claim . . . [1] even if they were used on the water balloon-filling devices of Boise or Saggio.

Ex. 1008, 20–21.

E. Evidence Relied Upon

Petitioner relies upon the following references (Pet. 18–20):

Reference	Patent or Pub. No. or Description	Date	Exhibit No.
Cooper	US 5,826,803	Oct. 27, 1998	Ex. 1029
Saggio	US 2013/0118640 A1	May 16, 2013	Ex. 1011
Lee	US 2005/0004430 A1	Jan. 6, 2005	Ex. 1012
Donaldson	US 5,014,757	May 14, 1991	Ex. 1013
Weir	US 6,478,651 B1	Nov. 12, 2002	Ex. 1015

Petitioner also relies on the Declaration of Dr. Ken Kamrin (Ex. 1022, “Kamrin Declaration”) and Supplemental Declaration of Dr. Ken Kamrin (Ex. 1034, “Supplemental Declaration”).

Patent Owner relies on the Declaration of Q. Todd Dickinson (Ex. 2032) and the Declaration of Joshua Malone (Ex. 2033).

F. The Instituted Grounds

Petitioner challenges claims 1–4 of the ’612 patent on the following grounds (Pet. 18–20):

Reference(s)	Basis	Claim(s) Challenged
	§ 112(a) for lack of written description	3
	§ 112(b) for indefiniteness	3
Saggio and Donaldson	§ 103	1–4
Saggio and Lee	§ 103	1–4
Saggio, Cooper or Weir, and Lee or Donaldson ⁴	§ 103	3

II. ANALYSIS

A. Level of Skill in the Art

Petitioner asserts that a person of ordinary skill in the art at the time of the effective filing date of the ’612 patent (“POSA”) was a person having general knowledge about, and experience with, expandable containers,

⁴ At one point, Petitioner seems to hint at a similar ground to a ground from PGR2016-00031 of Cooper, Saggio, and Donaldson. See Pet. 23. There is, however, no analysis of such a ground in the Petition, and we do not understand the Petition to be actually asserting such a ground.

including, without limitation, balloons, and at least an associate's degree in a technical science or engineering. Pet. 20 (citing Ex. 1022 ¶¶ 10–14). Patent Owner does not offer a competing definition.

We agree with Petitioner and determine that a POSA would have been a person having a general knowledge about, and experience with, expandable containers, including, without limitation, balloons, and at least an associate's degree in mechanical engineering, or the equivalent. This level of skill is consistent with the types of problems and solutions described in the '612 patent and cited prior art. For example, the '612 patent describes a fluid inflatable system that uses elastic valve 20A (e.g., mechanical gasket, O-ring, etc.) for sealing fluid inside multiple containers (e.g., water balloons). See Ex. 1001, 1:22–24, 3:10–16.

In any event, none of the issues in this case turn on the definition of a POSA, and the prior art of record provides ample evidence of the level of skill in the art. See *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (finding that the Board of Patent Appeals and Interferences did not err in concluding that the level of ordinary skill was best determined by the references of record); see also *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (“[T]he absence of specific findings on the level of skill in the art does not give rise to reversible error ‘where the prior art itself reflects an appropriate level and a need for testimony is not shown’”) (internal citation omitted).

B. Claim Construction

As a first step in our analysis, we determine the meaning of the claims. In a post-grant review, the Board gives claim terms in an unexpired patent their broadest reasonable interpretation in light of the specification of

the patent in which they appear. 37 C.F.R. § 42.200(b). “Under a broadest reasonable interpretation, words of the claim must be given their plain meaning, unless such meaning is inconsistent with the specification and prosecution history.” *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1062 (Fed. Cir. 2016). Any special definition for a claim term must be set forth with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

1. Terms Construed in the Institution Decision

We construed the term “elastic fastener” in our Decision on Institution, which is set forth in the following table. Inst. Dec. 14.

Claim Term	Construction in Institution Decision
elastic fastener	“an elastic element for attaching things together”

Neither party disputes the language of this construction. *See generally* Prelim Resp. 17; Reply. We adopt them for this Final Written Decision. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1080 (Fed. Cir. 2015) (*quoting Rodale Press, Inc. v. FTC*, 407 F.2d 1252, 1256–57 (D.C. Cir. 1968)) (“‘an agency may not change theories in midstream without giving respondents reasonable notice of the change’ and ‘the opportunity to present argument under the new theory.’”)

2. Other claim terms

None of our other determinations require us to interpret expressly any other claim term. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

C. Challenge under 35 U.S.C. § 112(b) for Indefiniteness

1. Legal Standard

In reviewing the indefiniteness of a claim, we consider whether the claim language is “cast in clear—as opposed to ambiguous, vague, indefinite—terms.” *In re Packard*, 751 F.3d 1307, 1313 (Fed. Cir. 2014)⁵; see MANUAL OF PATENT EXAMINING PROCEDURE (“MPEP”) § 2173.02(II) (9th Ed., Rev. 08.2017, Jan. 2018) (advising Examiners that the indefiniteness standard is whether “the language of the claim is such that a person of ordinary skill in the art could not interpret the metes and bounds of the claim so as to understand how to avoid infringement” (internal citation omitted)). Exact precision is not required. The test for determining the question of indefiniteness may be formulated as whether the claims “set out and circumscribe a particular area with a reasonable degree of precision and particularity.” *In re Moore*, 439 F.2d 1232, 1235 (CCPA 1971). With regard to the reasonableness standard, one must consider the language in the context of the circumstances. *Packard*, 751 F.3d at 1313.

2. “regardless whether the first and second ones of the plurality of containers are in a filled state or an unfilled state”

Petitioner contends that the term “filled state” in claim 3 is indefinite under 35 U.S.C. § 112(b), because the term is “‘filled’ is subjective . . . a container may be considered ‘filled’ when there is **any** amount of fluid in the

⁵ Although we apply the *Packard* standard here, we also consider, and determine, that the result would be the same under the standard articulated by the Supreme Court in *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014).

container.” Pet. 35 (citing Ex. 1022 ¶ 43). Petitioner also argues that that the containers might not press against each other if they were held upside down while being filled with water. Pet. 35; Ex. 1022 ¶¶ 40–43. Petitioner asserts that “[c]ontainers that press against each other when they are unfilled do not necessarily press against each other when they are filled.” Pet. 35 (emphasis omitted). Petitioner notes that “if the tubes are made of a flexible material, the containers may press when they are unfilled, but as they are filled with water, tubes may flex due to the increased weight of the containers, causing the containers to move away from each other.” *Id.*

Based on the preliminary record, and for the purposes of the Institution Decision only, we instituted post-grant review on Petitioner’s challenge that the term “filled state” in claim 3 is indefinite under 35 U.S.C. § 112(b), because the term is dependent upon the subjective desires of the user purportedly practicing claim 1. Inst. Dec. 22–24.

In its Patent Owner Response, Patent Owner counters that our treatment of “filled state” is incorrect. PO Resp. 1–14. Patent Owner asserts that “[b]ased on the plain language of this claim, a POSA would understand that the containers touch each other no matter if they are empty, full, or any state in between.” *Id.* at 8. Patent Owner notes that this was the conclusion of the Magistrate Judge in the district court proceeding. *Id.* In particular, the Magistrate Judge stated that, “taking the plain language of the claim, it is understood that the containers are pressed against each other when any amount of fluid is in the containers.” Ex. 1023, 20. As for Petitioner’s argument that the tubes could bend if held upside down, Patent Owner argues that this is contrary to everyday experience. PO Resp. 11.

Petitioner responds that without an objective definition of “filled state,” a POSA cannot understand the scope of claim 3, because “containers that press against one another when they are unfilled and during the beginning of the filling process may not press against each other as more water is added if, for example, the tubes are oriented upward during the filling process.” Reply 2.

While the terms “unfilled state” and “filled state” describe the fullness for a container, we do not agree with Petitioner that the claim language requires determining the precise amount of fluid for each state. Section 112(b) requires that we read claim terms in the context of the surrounding claim language, not in isolation. *Telebrands*, 733 F. App’x at 1020. When we look at the entire claim phrase—“regardless whether the first and second ones of the plurality of containers are in a filled state or an unfilled state”—the plain language is clear that **regardless** of whether the balloons are in either state, the “at least first and second ones of the plurality of containers are disposed sufficiently close to each other such that they press against each other.” In other words, the exact volume of fluid or water needed to reach a “filled state” does not need to be determined in order to understand the metes and bounds of the claim so as to understand how to avoid infringement. We are further persuaded because this is consistent with the district court’s construction of this term. *See* Ex. 1023, 19–20.

Petitioner attempts to inject ambiguity into this term through the testimony of its expert, but, in claim construction, when the meaning of the claim term is clear based on the intrinsic evidence—such as the claim language—“it is improper to rely on extrinsic evidence.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996). Even considering

the extrinsic evidence, we are not persuaded by Petitioner's and Dr. Kamrin's argument that

[I]f the tubes are made of a flexible material, the containers may press against each other when they are unfilled, i.e., empty. However, as the containers are filled with water, the tubes may flex due to the increased weight of the containers, causing the containers to move away from one another and not press.

Ex. 1022 ¶ 41. We are not persuaded that the exact measurement of fullness is required in light of the entire claim phrase. Specifically, Dr. Kamrin's proposed scenario is not relevant, because, in his scenario, the containers move away from each other when they are filled with water, and, thus, would not be pressing against each other **regardless** of whether filled or not filled, as required by the claim. Thus, we determine that the scope of this claim language is adequately clear and does not require, as Petitioner proposes, determining a precise subjective amount of fluid to be added to the containers. Moreover, a claim is construed in light of the specification from the perspective of a person of ordinary skill—in this case a person with an associate's degree in mechanical engineering—not in view of hypothetical situations not contemplated by the specification. Just as infringement cannot be avoided because some non-infringing mode is possible, we do not think that a claim is necessarily rendered indefinite by a hypothetical situation inconsistent with what is shown in the specification. *Cf. z4 Techs., Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1350 (Fed. Cir. 2007) (“[I]nfringement is not avoided merely because a non-infringing mode of operation is possible”); *Golden Blount, Inc. v. Robert H. Peterson Co.*, 438 F.3d 1354, 1363 (Fed. Cir. 2006) (“[I]t matters not that the assembled device can be manipulated into a non-infringing configuration”).

Based on the complete record, including all the arguments and evidence presented, we determine that Petitioner has not demonstrated by a preponderance of the evidence that claim 3 of the '612 patent is indefinite.

D. Challenge under 35 U.S.C. § 112(a) for Lack of Written Description

To satisfy the written description requirement under 35 U.S.C. § 112(a), the specification must sufficiently describe an invention understandable to a person of ordinary skill in the art and “show that the inventor actually invented the invention claimed.” *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). In other words, a patent applicant must “convey with *reasonable clarity* to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the ‘written description’ inquiry, whatever is now claimed.” *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991) (emphases in original omitted and emphasis added). “Such description need not recite the claimed invention *in haec verba* but must do more than merely disclose that which would render the claimed invention obvious.” *ICU Med., Inc. v. Alaris Med. Sys., Inc.*, 558 F.3d 1368, 1377 (Fed. Cir. 2009). “An applicant’s disclosure obligation varies according to the art to which the invention pertains.” *In re Hayes Microcomputer Prods., Inc. Patent Litig.*, 982 F.2d 1527, 1534 (Fed. Cir. 1992).

Petitioner asserts that the limitation, “at least first and second ones of the plurality of containers are disposed sufficiently close to each other such that they ***press against each other . . .*** in a filled state ***or an unfilled state,***” recited in claim 3, is not supported by the written description of the '612

patent. See Pet. 25–33. Specifically, Petitioner asserts that the ’612 patent only mentions that the containers “may push against each other” after, but not before, the filling process has begun. Pet. 27 (citing Ex. 1001, 4:29–30; Ex. 1022 ¶ 27).

Petitioner asserts that to meet its burden of proof, the Petition only needs to “establish that one of ordinary skill in the art cannot discern—one way or the other—whether [the balloons] necessarily press.” *Id.* Under that standard, Petitioner submits that Figure 1 does not provide the required support, because the ’612 patent does not specify whether Figure 1 shows unfilled or partially filled containers. *Id.* at 28 (citing Ex. 1001, 3:15–19, 3:53–67). According to Petitioner, a POSA cannot discern whether the containers are touching in Figure 1, because it is a “simplified perspective view” that “shows multiple containers in different depths of field.” *Id.* at 29 (citing Ex. 1001, 1:53–54; Ex. 1022 ¶ 30) (emphasis omitted). Petitioner argues that “[i]f the balloons in Figure 1 were in an unfilled state, i.e., empty, a [person of ordinary skill in the art] would expect they would have a distorted, as opposed to illustrated perfectly rounded, shape.” *Id.* (citing Ex. 1022 ¶¶ 31–32). Petitioner asserts that a POSA would have to have looked at the spatial relationship of the containers to determine if they are close enough to be touching. *Id.* at 30 (citing Ex. 1022 ¶ 34).

Petitioner further relies on *Hockerson-Halberstadt, Inc. v. Avia Group International, Inc.*, 222 F.3d 951, 956 (Fed. Cir. 2000), “because Figure 1 is a perspective drawing, if one attempts to discern whether the balloons are touching or are instead at different depths and not touching, one would need to impermissibly measure the precise spacing between the tubes and the balloons.” Pet. 30 n.8.

Petitioner further asserts that the specification merely recites that as the containers become filled, they may push against other. Supp. Reply 11. Petitioner notes that unfilled is the exact opposite of filled. *Id.* Thus, Petitioner contends that “[t]he specification fails to disclose containers pressing against each other in an unfilled state.” *Id.* (citing *Martin v. Mayer*, 823 F.2d 500, 505 (Fed. Cir. 1987)).

Based upon our review of the specification, and consideration of the arguments and evidence presented, Petitioner’s position is not persuasive. We agree with Patent Owner that Petitioner has failed to show that the ’612 patent does not provide such adequate guidance to a person of ordinary skill in the art. On its face, Figure 1 of the ’612 patent (reproduced below) shows containers 18 in contact or pressing against one another with the *reasonable clarity* required by *Vas-Cath Inc.*

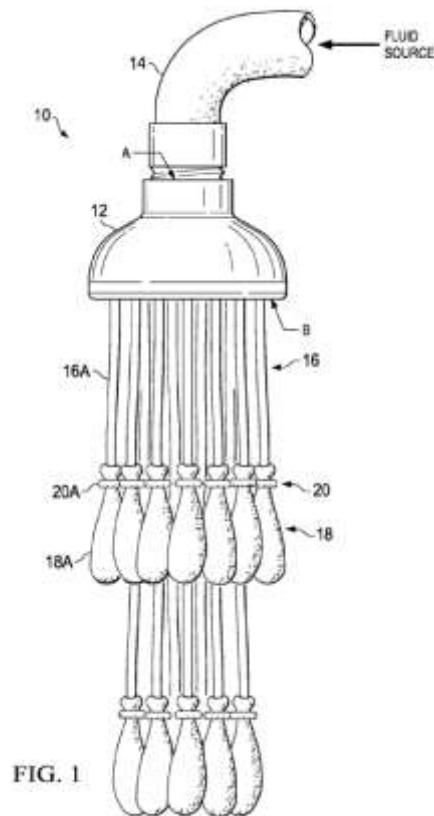


Figure 1 of the '612 patent is reproduced above.

Although the '612 patent describes, as Petitioner notes, that tubes 16 can be different lengths, we are not persuaded that the '612 patent's disclosure of an embodiment with different tube lengths detracts from the concurrent disclosure in Figure 1 of an embodiment, where it is difficult to describe containers 18 as being *not* in contact with each other.

Additionally, we agree with Patent Owner that Petitioner has failed to show adequately that a person of ordinary skill would not have understood the '612 patent as describing the containers in Figure 1 as pressing against one another in an *unfilled state*. The '612 patent indicates Figure 1 shows elastic valve 20A in an open configuration when container 18A is attached to tube 16A to allow container 18A to fill with fluid. Ex. 1001, 3:14–18. In this open configuration, container 18A is to be filled with fluid, after which, “it may be removed from tube 16A, whereupon elastic valve 20A closes, thereby closing the neck of container 18A and sealing the fluid inside.” *Id.* at 3:18–21 (emphasis omitted). The '612 patent refers to Figure 1 to describe an embodiment where elastic valve 20A is in an open configuration to fill a container that has not been filled (i.e., unfilled) and removed from tube 16A. Thus, we are persuaded that, at least, Figure 1 and this accompanying description of Figure 1 in the '612 patent provides sufficient written description for the recited limitation that “at least first and second ones of the plurality of containers are disposed sufficiently close to each other such that they press against each other . . . in a filled state or an unfilled state.”

Petitioner's arguments that the specification of the '612 patent is ambiguous as to whether the balloons are filled or unfilled in Figure 1 are

not persuasive. The specification satisfies the written description requirement when “the essence of the original disclosure” conveys the necessary information—“regardless of how it” conveys such information, and even when the disclosure’s “words [a]re open to different interpretation[s].” *In re Wright*, 866 F.2d 422, 424–25 (Fed. Cir. 1989) (internal citations and internal quotation marks omitted, emphasis omitted). Importantly, the “written description” requirement must be applied in the context of the particular invention and the state of the knowledge. *Capon v. Eshhar*, 418 F.3d 1349, 1358 (Fed. Cir. 2005). Here, we are dealing with a well-developed and predictable field. *See Bilstad v. Wakalopulos*, 386 F.3d 1116, 1126 (Fed. Cir. 2004) (noting that the mechanical arts are generally a predictable field).

We are also dealing with a person having a general knowledge about, and experience with, expandable containers, including, without limitation, balloons, and at least an associate’s degree in mechanical engineering, or the equivalent. We are not persuaded that the optical effects experienced in viewing bowling pins in an alley would instruct how one of ordinary skill in the art of filling expanding containers (e.g., balloons) would view Figure 1 of the ’612 patent. *See* Pet. 31–32; Ex. 1022 ¶¶ 36, 37. While we acknowledge Petitioner’s larger point that we should consider that Figure 1 is a two-dimensional side view of a three-dimensional reality, we are unpersuaded that the amount of overlap between containers 18 that are disposed in a roughly circular configuration (*see, e.g.*, Ex. 1001, Figs. 5–7) would convey to a person of ordinary skill in the art that the inventor did not have possession of containers 18 in contact with each other. The specification acknowledges that the balloons may “crowd[]” against each

other. Ex. 1001, 4:22–25. Thus, a person of ordinary skill would have understood that the balloons can be positioned close enough that they are touching. Given the level of skill and the predictability of this art, we believe there are more than sufficient disclosure to guide a person of ordinary skill with reasonable clarity to an embodiment where the balloons are touching. See *In re Skvorecz*, 580 F.3d 1262, 1270 (Fed. Cir. 2009) (finding the written description requirement met and noting “[a] person skilled in the mechanical arts would understand the specification including the drawings as showing . . . [the claimed configuration]”).

We are also not persuaded by Petitioner’s position that *Hockerson-Halberstadt* is controlling. Pet. 30 n.8. The principle stated in *Hockerson-Halberstadt* is that “patent drawings do not define the *precise proportions* of the elements and may not be relied on to show *particular sizes* if the specification is completely silent on the issue.” See *Hockerson-Halberstadt*, 222 F.3d at 956 (emphases added). Here, we do not agree with Petitioner that the precise dimensions and proportions in Figure 1 of the ’612 patent are at issue. If anything, we discern that the actual issue is relative positioning, which would appear to be more amenable to visual observation.

Accordingly, Petitioner has not demonstrated by a preponderance of the evidence that claim 3 is unpatentable for lack of written description pursuant to 35 U.S.C. §112(a).

E. Obviousness

1. Legal Standard

A claim is unpatentable for obviousness “if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the

claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103. The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art⁶; and (4) objective evidence of nonobviousness, i.e., secondary considerations, when in evidence. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Inherency may supply a missing claim limitation in an obviousness analysis, but “the use of inherency, a doctrine originally rooted in anticipation, must be carefully circumscribed in the context of obviousness.” *PAR Pharm., Inc. v. TWI Pharm., Inc.*, 773 F.3d 1186, 1195 (Fed. Cir. 2014). In *In re Oelrich*, the court explained:

Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. If, however, the disclosure is sufficient to show that the natural result flowing from the operation as taught would result in the performance of the questioned function, it seems to be well settled that the disclosure should be regarded as sufficient.

In re Oelrich, 666 F.2d 578, 581 (CCPA 1981) (internal citations and internal quotation marks omitted).

A party must, therefore, meet a high standard in order to rely on inherency to establish the existence of a claim limitation in the prior art in an obviousness analysis—the limitation at issue necessarily must be present, or the natural result of

⁶ The level of skill in the art is discussed in Section IIA.

the combination of elements explicitly disclosed
by the prior art.

PAR Pharm., 773 F.3d at 1195–96.

2. *Obviousness in View of Saggio and Donaldson*

a. *Scope and Content of the Prior Art*

(1) *Saggio (Ex. 1011)*

Saggio discloses a system for filling a plurality of tie-less water balloons. Ex. 1011 ¶ 7. Saggio also discloses a tie-less water balloon including “a one-way valve . . . inside the balloon that allows water to enter the balloon but not escape it.” *Id.* Figures 5 and 7 of Saggio are reproduced below:

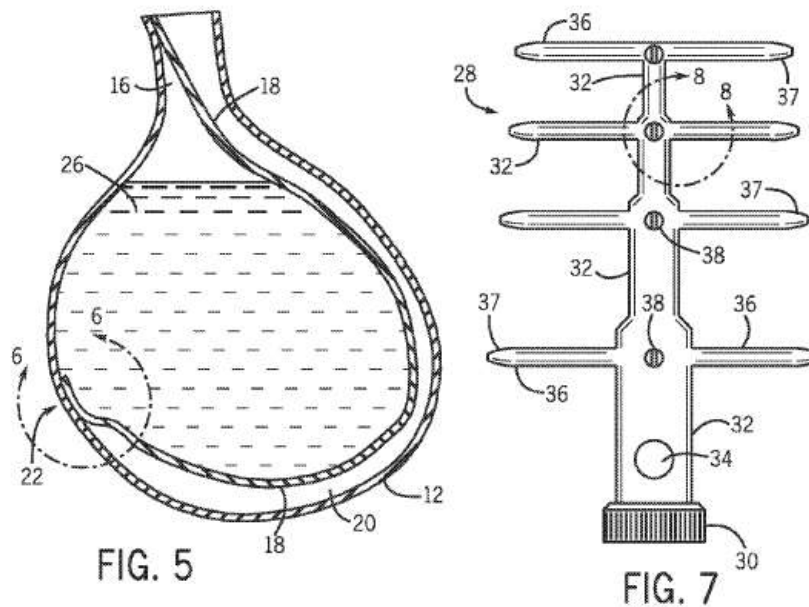


Figure 5, reproduced above, is a cross-sectional view showing Saggio’s tie-less water balloon filled with water. *Id.* ¶ 13. Figure 7, reproduced above, is a front elevation view of a multi-balloon filling assembly. *Id.* ¶ 15.

As shown in Figure 7, reproduced above, the multi-balloon filling assembly includes water supply fitting 30, main conduit 32, lateral conduits 36, and plurality of conduit tips 37. *Id.* ¶ 22. Water supply fitting 30 is adapted to connect to a hose. *Id.* ¶ 23. Conduit tips 37 are adapted to engage the necks of the balloons, such that a large number of balloons may be filled simultaneously. *Id.* ¶ 24.

As shown in Figure 5, the tie-less water balloon is filled with water 26 through one-way channel 20 formed by outer wall 12 and inner membrane 18. *Id.* ¶ 19. After filling, the water inside the balloon presses the distal end of inner membrane 18 against outer wall 12 to close channel 20 and to prevent the water from escaping. *Id.* ¶¶ 7, 19. As such, inner membrane 18 functions as a one-way valve.

(2) *Donaldson (Ex. 1013)*

Donaldson is directed to a balloon inflating device that includes a pressurized gas source for inflation of the balloon. Ex. 1013, Abstract. Figures 1, 4, and 5 of Donaldson are reproduced below:

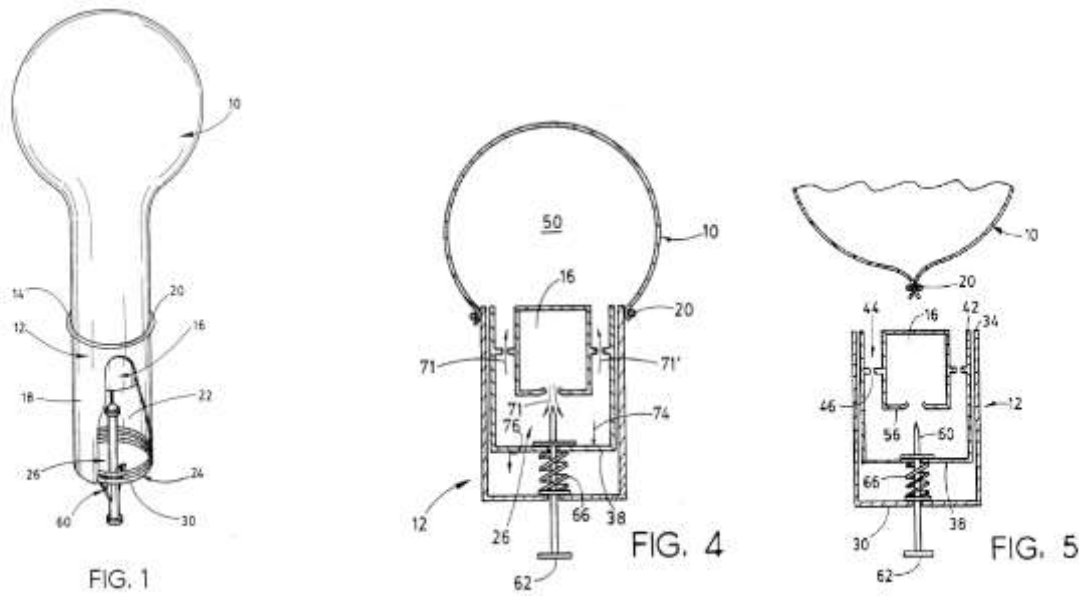


Figure 1, reproduced above, shows balloon 10 partially inflated by inflation device 12 that is attached to mouth 14 of balloon 10. *Id.* at 2:34–41.

Pressurized gas container 16 is attached to mouth 14 to allow pressurized gas to enter balloon 10. *Id.* A sealing device, such as O-ring 20, attaches mouth 14 to outer surface 18 of the device. *Id.* In operation, device 12 works by impacting it against a hard surface to release the fluid in pressurized gas container 16. *Id.* at 2:42–44. As shown in Figure 4, reproduced above, the impact may fire pin head 62 toward pressurized container 16, which ruptures and releases pressurized gas that fills inner container 24 and moves through orifices 46 into balloon 10. *Id.* at 4:33–50. When balloon 10 is inflated to a prescribed pressure, the further escape of pressurized gas from container 16 will apply force to the inner container bottom shown by arrow 74. *Id.* at 4:53–56. The downward pressure moves inner container 16 toward outer container wall upper edge 34, which causes the surface on which O-ring 20 is seated to disappear. *Id.* at 4:65–5:3. As shown in Figure 5, reproduced above, this releases the O-ring and pulls the balloon off the device. *Id.* at 5:3–6.

b. Differences between the Claimed Subject Matter and the Prior Art

Petitioner argues that claims 1–4 of the '612 patent would have been obvious over the combination of Saggio and Donaldson. *See* Pet. 19, 47–55. Below we discuss independent claim 1, which is also illustrative of the subject matter of dependent claims 2–4.

(1) The Parties' Contentions

Turning to independent claim 1, we discern that the claimed subject matter is directed generally to an apparatus comprising a housing with a plurality of holes, a plurality of hollow tubes attached to the holes, a

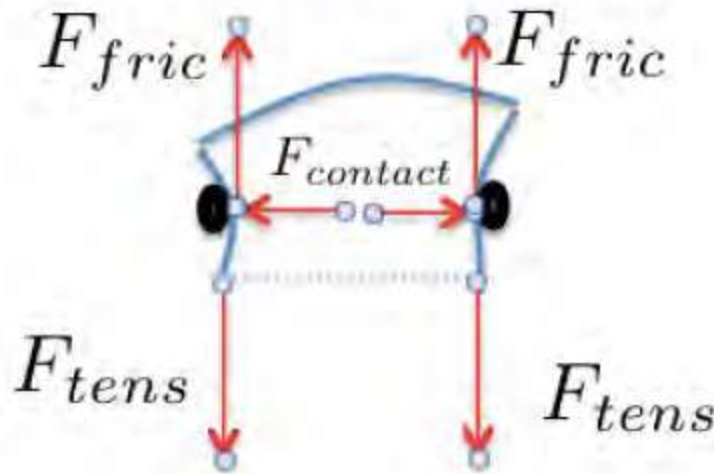
plurality of containers, and

a plurality of elastic fasteners, each elastic fastener clamping a respective one of the plurality of containers to a respective tube, and each elastic fastener configured to restrict detachment of its respective container from its respective tube and to automatically seal its respective container upon detachment of the container from its respective tube, the ***restriction of each elastic fastener being sufficiently limited to permit its respective container to detach from its respective tube by at least partially filling the container with water.***

Emphasis added. Claim 1 further requires that the recited apparatus “is configured to fill the containers substantially simultaneously.”

For most of these limitations, Petitioner relies on Saggio. Petitioner asserts that Saggio discloses a plurality of balloons (i.e., containers) that are removably attached to a respective one of the hollow tubes for simultaneously filling the containers with water. Pet. 43–44 (citing Ex. 1011, Fig. 1, element 10, ¶ 24). Petitioner relies on Donaldson to account for the claimed elastic fastener. See Pet. 44–45. Petitioner presents several different theories for how Donaldson teaches or suggests the recited elastic fastener. Petitioner’s primary theory is that Donaldson’s O-ring is inherently capable of performing the claimed function of permitting the containers to detach after partially filling, because “[t]he ability of Donaldson’s elastic fastener to permit the balloon to detach by at least partially filling the balloon with water is necessarily present in Donaldson, as it is the natural result of the combination of Saggio and Donaldson.” Pet. 47 (citing Ex. 1022 ¶¶ 93–100). Specifically, Petitioner asserts that Donaldson inherently teaches this because “Donaldson’s rubber band and balloon detach before the balloon pops or tears, which . . . is governed by Newton’s second law: $F = ma$.” *Id.* at 48. Petitioner and Dr. Kamrin offer a

free-body diagram of the forces that they contend are exerted on the balloon membrane and the fastener in Donaldson. *Id.* at 48–49; Ex. 1022 ¶¶ 94–97. The free-body diagram provided by Petitioner is reproduced below.



Petitioner contends that the diagram shows the forces acting on the neck of the balloon when the balloon is clamped to a tube by a rubber band. *Id.* at 49. Petitioner argues that, in the above-diagram, F_{fric} is the frictional force acting on the balloon while the balloon is clamped to the tube. *Id.* Petitioner asserts that F_{fric} cannot exceed the maximum connecting force of the O-ring holding the balloon on the tube ($F_{connect}$). *Id.* Petitioner argues that F_{tens} is the internal force within the balloon membrane, and is generated from whatever method that is being used to load the balloon in the region below the neck, e.g., gravitational weight of the internal fluid. *Id.* Petitioner asserts that, in Donaldson, the O-ring and balloon detach from the tube the force of pressurized gas ($F_{pressure} = \text{Area} * P_{gas}$). *Id.* at 50 (citing Ex. 1013, 1:64–68, 4:53–5:10; Ex. 1022 ¶ 99). Petitioner also states that “Donaldson also teaches that the balloon and O-ring detach when the tube moves in a direction away from the neck of the balloon,” and that “[t]he tube’s

movement is an acceleration, which adds an inertial force to the balloon (F_{inertial}).” *Id.* Petitioner contends that $F_{\text{ten}} = F_{\text{pressure}} + F_{\text{inertial}}$ in Donaldson. *Id.* Petitioner also contends— F_{strength} —the maximum force that can be supported by the balloon membrane before it breaks, *id.*, must be greater than the force that connects the rubber band from the hallow tube, F_{connect} , *id.* at 48. Petitioner asserts that the balloon is only able to detach without breaking if the balloon/O-ring/tube system is configured such that $F_{\text{strength}} > F_{\text{connect}}$. *Id.* at 49–50. Petitioner concludes “[b]ecause F_{strength} is greater than F_{connect} , Donaldson inherently teaches that the O-ring and balloon will detach by at least partially filling the balloon with water.” *Id.* at 51.

Petitioner, argues, alternatively, that “one of ordinary skill in the art would have known that any O-ring used to attach Saggio’s balloons to Cooper’s tubes should be (and could be) designed to be of such a strength to perform those functions—and doing so would have been a rudimentary task.” Pet. 51 (citing Ex. 1022 ¶ 100; Ex. 1012, 1:47–49, 4:53–5:10). Petitioner contends that Donaldson teaches that inflating balloons should be easy for children, that an O-ring allows the balloon to be detached from the hallow tube upon application of a force, and that the balloon can be detached without manually pulling the balloon off of the tube. *Id.* (citing Ex. 1022 ¶ 100; Ex. 1012, 1:47–49, 4:53–5:10). Petitioner contends a POSA would “obviously . . . use an O-ring capable of clamping . . . [a] balloon . . . to permit easy detachment without tearing” because “[o]therwise it would not be useful for adults—let alone children.” *Id.*

In its Supplemental Reply, Petitioner concedes that mechanical action “aids” in the balloon detaching, but contends that pressurized gas causes the

balloon to detach from the tube. Supp. Reply 2. Petitioner reasons that “[s]ince Donaldson discloses that the O-ring can be detached, it is clear that the O-ring of Donaldson inherently **must** have a tension low enough to permit the balloon to detach from the tube.” *Id.* at 3. Petitioner argues that the fact that Donaldson is not used with water is of “no significance,” because the force acting on the balloon must still be greater than the frictional force for the balloon to detach. *Id.* at 3–4. Petitioner contends that “[r]egardless of the fluid inside the balloon or the force applied, a POSA would still look to the structure and function of the O-ring disclosed by Donaldson to clamp a balloon to a tube so that it detaches by partially filling.” *Id.* at 4. As for the Examiner’s statement in the Reasons for Allowance, Petitioner argues that this statement does not matter because it has demonstrated that Donaldson discloses an elastic fastener, as claimed. *Id.* at 5.

In its Patent Owner Preliminary Response, Patent Owner highlights the differences between Saggio and Donaldson, including that: (1) Saggio does not include an elastic fastener; (2) Saggio does not disclose that the containers detach upon being at least partially filled; and (3) Donaldson teaches a series of mechanical steps (e.g., mechanical actuation) must be performed before an air-filled balloon is detached and sealed. Prelim. Resp. 23–26. Patent Owner argues that “the device of Donaldson teaches adjustment of the spring force to move at a desired balloon pressure, thereby removing the supports for the O-ring to release and seal the balloon,” or in other words, “Donaldson teaches that the balloon detaches by limiting the spring force of the inner container.” *Id.* at 27. Patent Owner asserts that Donaldson does not teach that the balloon can automatically detach by

limiting the elastic force of the O-ring. *Id.* Patent Owner submits that “Donaldson teaches only the minimum elastic force of the O-ring: enough force to seal the balloon against the escape of pressurized gas during inflation and after release from the device.” *Id.* at 28 (citing Ex. 1013, 4:50–52, 5:7–10). Patent Owner contends that Petitioner fails to discuss the spring and the mechanical action of Donaldson. *Id.* at 28–29.

Patent Owner argues that, contrary to Petitioner’s contentions, Donaldson does not teach using the O-ring to automatically detach the balloon upon filling. *Id.* at 29. Patent Owner asserts that, if the O-ring would detach itself, then the mechanical mechanism of Donaldson would be superfluous. *Id.* at 30.

Patent Owner further argues that the test for whether Donaldson teaches the elastic fastener of claim 1 is not whether Donaldson’s O-ring is capable of detaching when partially filled with water. *Id.* at 31. Patent Owner submits that “[a]ll balloons must be capable of detaching; otherwise, they could not be sealed and function as a balloon.” *Id.* Patent Owner argues that claim 1, instead, “is directed to a specific elastic fastener whose strength controls how the balloon detaches, permitting the balloon ‘**to detach** by at least partially filling with water’ without adding any external force.” *Id.*

(3) Discussion

We agree with Patent Owner that Petitioner has failed to show that Donaldson accounts for an elastic fastener that meets the Sufficiently

Limited Limitation.⁷ Petitioner’s arguments suffer from several significant deficiencies. As an initial matter, we agree with Patent Owner that Petitioner fails to account adequately for Donaldson’s mechanical action in its analysis. *See* Prelim. Resp. 26–29. The Petition’s and Dr. Kamrin’s initial description of Donaldson does not even mention the mechanical action of Donaldson and asserts only that it is pressure exerted by the gas in the balloon that causes the balloon to release. *See* Pet. 40; Ex. 1022 ¶ 59. Dr. Kamrin cites to Donaldson’s text to support his interpretation, but a review of the cited section of Donaldson, Ex. 1013, 4:65–5:3, shows this assertion is not supported by Donaldson. In particular, the cited portion of Donaldson’s text does not describe the pressure in the balloon as overcoming the force holding the balloon on the tube, but rather the movement of pressurized container 16 as “causing the surface on which the O-ring 20 is seated to disappear,” and that “[a]s soon as this seating surface disappears, the O-ring is released and pulls the balloon off of the device” Ex. 1013, 4:65–5:3 (emphasis omitted). Without citation or explanation, Dr. Kamrin later testifies, in his inherency analysis that, in addition to force of the pressurized gas, “Donaldson also teaches that the balloon detaches when the tube moves in a direction away from the neck of the balloon.”

⁷ We note that in the related case, PGR2016-00031, we preliminarily found that the limitation similar to the Sufficiently Limited Limitation in that case was taught by Donaldson. -00031 DI, at 26–30. In the Final Written Decision in PGR2016-00031, we assumed, without deciding, that Donaldson accounted for this element. -00031 FD, 35 (stating “even assuming these arguments are correct” when discussing the elastic fastener limitations in those claims). In this Final Written Decision, we do not make that assumption.

Ex. 1022 ¶ 99. Yet this analysis is inconsistent with Donaldson's text, which makes clear that it is the movement of the tube which causes the surface O-ring 20 is seated on to disappear and thereby cause the detachment, not the combination of pressure and movement. Ex. 1013, 4:65–5:3.

In his Supplemental Declaration (Ex. 1034), Dr. Kamrin repeats his assertion that Donaldson teaches that the pressure causes the balloon to release, citing the same portion of Donaldson discussed above. Ex. 1034 ¶ 5 (citing Ex. 1013, 4:65–5:3). In the very next paragraph (paragraph 6) of his Supplemental Declaration, Dr. Kamrin, citing the same portion of Donaldson he relied on in the previous paragraph, accurately recounts how the cited portion of Donaldson describes the operation of Donaldson's device. *Id.* ¶ 6 (citing Ex. 1013, 4:65–5:6). Dr. Kamrin also offers a new theory that because the pressurized gas causes the spring in Donaldson to compress causing the tube to move, even if the mechanical force causes the detachment, the balloon is detached by partial filling of the balloon. *Id.* Petitioner assures us that these shifting theories of operation are not important, because Donaldson's O-ring detaches without the balloon bursting. Supp. Reply 3. Yet we determine that the muddled understanding, inconsistencies between the text of Donaldson and Dr. Kamrin's analysis, and Dr. Kamrin's shifting testimony severely undercuts the weight we will give to Dr. Kamrin's testimony, and Petitioner's analysis, regarding Donaldson.

In addition to the problems with the factual basis for Dr. Kamrin's theories, his analysis rests on probabilities and possibilities of a theoretical force analysis of the system of Donaldson, without any reference to the

relative magnitude of those forces or recognition of how those forces would be different in different systems. *See* Prelim. Resp. 29–30. For instance, although seeming to acknowledge that there are differences between Saggio and Donaldson, Dr. Kamrin’s response to Patent Owner’s arguments, in his Supplemental Declaration, amounts to an assertion that Donaldson must teach the claimed elastic fastener because Donaldson allows detachment. *See* Ex. 1034 ¶ 8 (“It is clear that the elastic fastener, therefore, permits detachment upon at least partially filling the balloon with a fluid. If the elastic fastener did not permit detachment under these circumstances the balloon would not detach”). But just because Donaldson’s elastic fastener may function this way in Donaldson’s system does not establish that it would function that way in other systems as well. As Dr. Kamrin’s force balance makes clear, the detachment force involves a balance between friction and tension, including various mechanical forces acting on the balloon. Dr. Kamrin fails to account adequately for the variation of the forces, such as the frictional force, F_{Fric} , as the Examiner⁸ noted in the

⁸ We weigh the Examiner’s findings on the same art and argument as part of our Decision. *See* Response C1 of the USPTO’s SAS Q&As (available at https://www.uspto.gov/sites/default/files/documents/sas_gas_20180605.pdf), which explains:

C1. Q: Will the Board vacate its prior institution decision if including all claims and/or grounds would bring in challenges that were initially denied under 35 [U.S.C.] § 325(d)?

A: No, at this time the Board does not anticipate vacating prior institution decisions under these circumstances. Although challenges subjected to § 325(d) will be addressed in the Final Written Decision, panels will take into account evidence that the same or substantially the same art or argument

Notice, based on the coefficient of friction surface area of the band, the diameter and shape of the tube, and a number of other circumstances. *See* Ex. 1008, 20–21. Moreover, Dr. Kamrin offers only a cursory accounting of how the inertial force (F_{inertial}) caused by the movement of Donaldson’s inner tube affects the system. *See* Ex. 1022 ¶ 99. In particular, we are not persuaded that F_{inertial} of the balloon would not be substantially different in a system using water rather than air, as it is basic physics that at the same pressure, the mass of a balloon filled with a given volume of water would be substantially greater than a balloon filled with the same volume of air. Dr. Kamrin does not provide sufficient explanation accounting for this very elementary difference, other than conclusorily asserting that changing the fluid would have no effect on Donaldson. *See* Ex. 1034 ¶ 9. Taking into account all these inconsistencies and gaps in his analysis, and the Examiner’s prior consideration of this same art and argument, Dr. Kamrin’s testimony, at best, shows what may possibly result in a given set of circumstances, but this is insufficient to show inherency. *See PAR Pharm.*, 773 F.3d at 1195.

In addition to failing because it rests on possibilities and probabilities, Dr. Kamrin’s inherency theory conflates inherency with hindsight-driven obviousness. Dr. Kamrin’s theory attempts to show that Donaldson’s O-ring, when in Donaldson’s system, inherently meets the Sufficiently Limited Limitation. Ex. 1022 ¶¶ 93–99. Then, without any further explanation, Dr. Kamrin appears to contend and that a person of ordinary skill would then

was previously before the Office and give such evidence due weight in addressing the challenge.

engineer the combination of Saggio and Donaldson so that the elastic fastener of Donaldson would have the same inherent property—that is not discussed or mentioned anywhere—in this new system. See Ex. 1022 ¶¶ 101–104. Yet, as the Examiner recognized, even if a fastener might meet the limitation in one system, there is no guarantee that the same fastener would perform similarly in a different system given the number of variables that would affect the elastic fastener’s performance. See Ex. 1008, 20–21. Although bodily incorporation in an obviousness analysis is not required, Petitioner fails to explain adequately how, besides through hindsight, a person of ordinary skill would recognize this undisclosed property of Donaldson’s elastic fastener and seek to replicate it in the combination. *In re Shetty*, 566 F.2d 81, 86 (CCPA 1977) (“[T]he inherency of an advantage and its obviousness are entirely different questions. . . . Obviousness cannot be predicated on what is unknown.” (quoting *In re Spormann*, 363 F.2d 444, 448 (CCPA 1966))); see also *Honeywell Int’l Inc. v. Mexichem Amanco Holdings S.A. DE C.V.*, 865 F.3d 1348, 1354 (Fed. Cir. 2017) (noting “the use of inherency in the context of obviousness must be carefully circumscribed because ‘[t]hat which may be inherent is not necessarily known’ and that which is unknown cannot be obvious” (quoting *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993))).

We are also not persuaded by Petitioner’s alternative theory, that once one skilled in the art chose to use such an O-ring, they obviously would have used an O-ring capable of clamping the balloon with appropriate force to permit easy detachment without tearing, and that this would meet the Sufficiently Limited Limitation. Pet. 51 (citing Ex. 1022 ¶ 100). The problem with this theory is that it still relies on inherency—although without

expressly saying so. The theory cannot posit that it would have been obvious to design an elastic fastener with the express objective of meeting the Sufficiently Limited Limitation, because Petitioner has not shown persuasively that this limitation is taught by the art. Instead, Petitioner offers that it would be obvious to design an elastic fastener that permits “easy detachment,” and an elastic fastener that meets this vague “easy detachment” standard must meet the Sufficiently Limited Limitation. *Id.* at 51. But since “easy detachment” is only vaguely defined, this theory can only offer probabilities and possibilities that an elastic fastener that permits “easy detachment” would meet the Sufficiently Limited Limitation. Again, this is insufficient. Thus, we find Petitioner has failed to offer sufficient evidence that the recited elastic fastener would have been obvious.

Further, we note that we are not persuaded otherwise by Petitioner’s argument that Patent Owner has failed to refute Dr. Kamrin’s testimony. Supp. Reply 2. Petitioner, not Patent Owner, has the burden to show, by a preponderance of the evidence, a reason why one of ordinary skill in the art would have combined the prior art references to arrive at the invention. 35 U.S.C. § 326(e); 37 C.F.R. § 42.1(d). This burden cannot be satisfied by conclusory statements, and more importantly, does not shift to the Patent Owner. *See In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (a petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements”).

c. Conclusion as to Obviousness

For these reasons above, we determine that Petitioner has failed to establish that the combination of Saggio and Donaldson accounts for the Sufficiently Limited Limitation of claim 1. Thus, we determine that

Petitioner has failed to show, by a preponderance of the evidence that claim 1, and claims 2–4 that depend from claim 1, which all include this limitation, would have been obvious over Saggio and Donaldson.

3. Obviousness in View of Saggio and Lee

a. Scope and Content of the Prior Art

*(1) Lee (Ex. 1012)*⁹

Lee, titled “**ENDOSCOPIC BALLOON INSERTION DEVICE FOR TREATMENT OF OBESITY AND INSERTION TECHNIQUE OF THE SAME,**” relates to an endoscopic balloon insertion device for treatment of obesity. Ex. 1012, [54], ¶ 2. Lee’s insertion device includes inner guide pipe 3 and outer guide pipe 4. *Id.* ¶ 31. “[A] rubber band 2 with a high elastic force surrounds the inner guide pipe 3 for stably binding an opening of the balloon when the balloon 1 is expanded.” *Id.* ¶ 33 (emphasis omitted). Figure 6 of Lee is reproduced below.

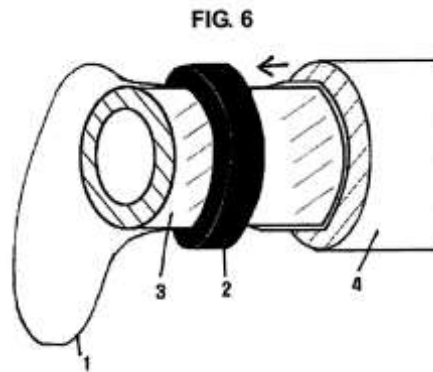


Figure 6, reproduced above, is a cross-sectional view illustrating a front end of inner guide pipe 3 and a movement of rubber band 2. *Id.* ¶¶ 24, 34. As illustrated in Figure 6, Lee discloses expanding the balloon through

⁹ We assume, without deciding, that Lee is analogous art to the claimed invention.

inner guide pipe 3 and then pushing outer guide pipe 4 in the direction of the front end to move the rubber band and release it from the inner guide pipe.

Id. ¶ 33. “Therefore, the escaped rubber band seals and releases the balloon from the guide pipe for thereby inserting the balloon in the stomach in a state that the balloon is tied by the rubber band.” *Id.*

b. Differences between the Claimed Subject Matter and the Prior Art

Petitioner argues that claims 1–4 of the ’612 patent would have been obvious over the combination of Saggio and Lee. *See* Pet. 19, 55–62. Below we discuss independent claim 1, which is also illustrative of the subject matter of dependent claims 2–4.

Turning to independent claim 1, we discern that the claimed subject matter is directed generally to an apparatus comprising a housing with a plurality of holes, a plurality of hollow tubes attached to the holes, a plurality of containers, and

a plurality of elastic fasteners, each elastic fastener clamping a respective one of the plurality of containers to a respective tube, and each elastic fastener configured to restrict detachment of its respective container from its respective tube and to automatically seal its respective container upon detachment of the container from its respective tube, the ***restriction of each elastic fastener being sufficiently limited to permit its respective container to detach from its respective tube by at least partially filling the container with water.***

Emphasis added. Claim 1 further requires that the recited apparatus “is configured to fill the containers substantially simultaneously.”

For most of these limitations, Petitioner relies on Saggio. Petitioner further asserts that Saggio discloses a plurality of balloons (i.e., containers) that are removably attached to a respective one of the hollow tubes for

simultaneously filling the containers with water. Pet. 57–58 (citing Ex. 1011, Fig. 1, element 10, ¶ 24).

Further, in the Petition, Petitioner argues Lee’s elastic fastener is inherently capable of performing the claimed function of permitting the containers to detach after at least partially filling with water. *Id.* at 60. Specifically, Petitioner asserts that Lee teaches that

after the balloon is filled and expanded with an amount of air, an outer guide pipe is used to push the rubber band off of the end of the inner guide pipe. (*Id.*; Ex. 1012, ¶¶ [0033]–[0034].) The balloon moves with the rubber band off of the inner guide pipe. (*Id.*) As explained below, because the rubber band in Lee can be pushed off of the tube with the balloon when it is filled with air, Lee’s rubber band and balloon are inherently capable of detachment by at least partially filling the balloon with water. (Ex. 1022, ¶¶ 76–77.) The force applied on the rubber band and the balloon to push them off of the tube is equivalent to the force applied due to water in the balloon. This is simply Newton’s second law: $F = ma$. (*Id.*)

Pet. 60. Petitioner contends that a POSA “would have understood that the rubber band used to hold Lee’s balloon on the tube allows the balloon to be detached with a force.” *Id.* Petitioner contends that “it would not have even occurred” to a POSA “to have used a rubber band that clamped the balloon so tight that it was difficult to detach.” *Id.*; *see also* Supp. Reply 7.

Petitioner argues that “[o]therwise, the balloon in Lee would not be usable (because it would not detach and/or would rip/tear during detachment) and the self-sealing action taught in Lee would not come into play.” Pet. 60–61. Petitioner asserts that “at some point the balloon will necessarily detach with a large enough force, such as a force due to and the weight of some amount of water in the balloon.” *Id.* at 61.

Patent Owner notes that Lee was cited in the prosecution, and directly considered by the Examiner. Prelim. Resp. 20–21, 33–34; Ex. 1008, 20–21. Patent Owner asserts that Lee does not disclose any upper tension of the rubber band. *Id.* at 33. Patent Owner contends that Petitioner applies the wrong test for inherency. *Id.* at 34. Patent Owner asserts that the test is not “whether Lee’s rubber band can be separated from the tube,” because “any balloon must be capable of detaching and sealing in order to function as a balloon.” *Id.* Instead, Patent Owner argues that “[t]he question is whether Lee teaches that the tension of the elastic fastener is limited such that the balloon automatically detaches and seals when the balloon is filled with water. . . .” *Id.*

In its Supplemental Reply, Petitioner further argues that there must be some upper limit to the tension in Lee, because otherwise the balloon cannot detach, which would render Lee inoperative. Supp. Reply 7–8. Petitioner asserts that the force required to overcome the frictional force of the rubber band, and detach the balloon from the tube, is the same regardless of whether the balloon is filled with air or water, or how the force is applied. *Id.* at 8.

We agree with Patent Owner that Petitioner has failed to show that Lee alone, or in combination with Saggio, teaches an elastic fastener that meets the Sufficiently Limited Limitation of claim 1. In particular, we agree with Patent Owner that, given the Examiner’s consideration of Lee and the same or similar arguments during the prosecution of the ’612 patent,¹⁰

¹⁰ We give the Examiner’s findings on the same art and arguments weight in our analysis. *See supra* at n. 8.

Petitioner has failed to show that Lee inherently teaches such an elastic fastener. As we explained in our Decision to Institute, during the prosecution of the '612 patent, the Examiner considered Lee and both the Petition and Decision on Institution in PGR2015-00018, which presented and discussed Petitioner's inherency theory. *See* Inst. Dec. 10–12; Ex. 1008, 7 (IDS showing “Petition for Post-Grant Review . . . Case No. PGR2015-00018”), 20–21 (discussing Lee).

Here, the Examiner specifically analyzed and discussed Lee. Ex. 1008, 20–21. The Examiner cited evidence to support the conclusion that the properties of elastic bands vary widely, and that Lee did not inherently teach an elastic band with the properties claimed. *Id.* The Examiner also identified a number of specific variables that would affect whether the elastic band would meet the Sufficiently Limited Limitation. *Id.* at 21. Petitioner fails to address this analysis. Instead, Petitioner and Dr. Kamrin offer only a high-level analysis using Newton's Second Law (i.e., $F=ma$) and a number of high-level assumptions to reason that because the elastic band of Lee must detach in response to a force and the weight of water in a balloon due to gravity can supply a force, the band of Lee, which detaches in response to a force, would also necessarily detach in response to filling with water. Pet. 60–61; Supp. Reply 7–8; Ex. 1022 ¶¶ 75–77; Ex. 1034 ¶¶ 17–18. Neither Petitioner nor Dr. Kamrin ever address the Examiner's evidence and analysis with respect to Lee discussed above. *See id.*; *see supra* at 9–11. Instead, Petitioner and Dr. Kamrin ignore the evidence and variables identified by the Examiner and offer a conclusory assertion—without citing any other evidence than Dr. Kamrin's conclusory statements—that Lee inherently teaches the Sufficiently Limited Limitation.

Id. We find that, given the Examiner’s detailed and reasoned conclusions regarding this exact point, Petitioner’s and Dr. Kamrin’s analysis is insufficient to meet the “high standard” for inherency in an obviousness analysis. *See PAR Pharm.*, 773 F.3d at 1195–96. At best, Petitioner and Dr. Kamrin offer a possibility or probability that Lee’s elastic band could meet this limitation, but that is insufficient. *See Oelrich*, 666 F.2d at 581.¹¹

c. Conclusion as to Obviousness

Because Petitioner has failed to account for the Sufficiently Limited Limitation of claim 1, Petitioner has failed to show by a preponderance of the evidence that the challenged claims—independent claim 1, and claims 2–4, which depends from claim 1—are unpatentable as obvious over Saggio and Lee.

4. Obviousness in view of Saggio, Donaldson or Lee, and Cooper or Weir

Petitioner asserts that claim 3 would have been obviousness in view of Saggio, Donaldson or Lee, and Cooper or Weir. Pet. 62–65. Claim 3 depends from claim 1, and Petitioner relies on its analysis for the grounds of Saggio and Lee and Saggio and Donaldson to account for the limitations of

¹¹ Although not mentioned in the body of this analysis because it was not briefed, we note that our reviewing court has found that Lee is not analogous art to claims in the related ’066 patent. *Tinnus Enterprises, LLC v. Telebrands Corp.*, 846 F.3d 1190, 1207 (Fed. Cir. 2017). The Board inquired about this at oral argument, and Petitioner responded. Tr. 13:17–15:4. While in view of our analysis, there is no need to opine on this issue directly, we note that, at a minimum, the Federal Circuit’s express findings concerning Lee and the ’066 patent weigh against a determination that claims reciting similar subject matter in a patent related to the ’066 patent are obvious in view of Lee.

claim 1 present in claim 3 for this ground. *See id.* at 62–63. Cooper and Weir are only relied upon for the limitation added in claim 3, not for any of the limitations of claim 1. *See id.* at 62–65. We have found that Petitioner has failed to show that the combinations of Saggio and Lee and Saggio and Donaldson account for all of the limitations of claim 1. Thus, we determine that Petitioner has also failed to show that claim 3 would have been obvious over Saggio, Donaldson or Lee, Cooper or Weir.

F. Petitioner’s Motion to Exclude Evidence

Petitioner moves to exclude the following exhibits and testimony:

(1) Paragraphs 21–30 of the Declaration of Q. Todd Dickinson (“Dickinson Declaration”) (Ex. 2032); and

(2) Paragraphs 2–6 of the Declaration of Josh Malone (“Malone Declaration”) (Ex. 2033).

Mot. 1.

We did not rely on any of the challenged testimony in the Dickinson Declaration or the Malone Declaration, so we *dismiss* Petitioner’s Motion to Exclude *as moot*.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has failed to establish by a preponderance of the evidence that claims 1–4 are unpatentable as obvious over Saggio and Donaldson or Saggio and Lee. Petitioner has further failed to establish by a preponderance of the evidence that claim 3 is indefinite under 35 U.S.C. § 112(b), lacks written description support under 35 U.S.C. § 112(a), or is unpatentable as obvious under

35 U.S.C. § 103 over the combinations of Saggio, Donaldson or Lee, and Cooper or Weir.

IV. ORDER

Accordingly, it is:

ORDERED that Petitioner has not shown by a preponderance of the evidence that claims 1–4 are unpatentable;

FURTHER ORDERED that Petitioner’s Motion to Exclude is DIMISSED AS MOOT; and

FURTHER ORDERED that, because this is a Final Written Decision, any party to the proceeding seeking judicial review of this Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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