

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CHANEL, INC.,
Petitioner,

v.

MOLO DESIGN, LTD.,
Patent Owner.

IPR2022-00543
Patent 7,866,366 B2

Before KEN B. BARRETT, CARL M. DEFRANCO, and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

MARSCHALL, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

Petitioner Chanel, Inc. challenges claims 1–3, 5–11, 13, 16, 18, 20–25, and 27 of U.S. Patent No. 7,866,366 B2 (Ex. 1001, “the ’366 patent”), which is assigned to Patent Owner Molo Design, Ltd. We have jurisdiction under 35 U.S.C. § 6, and we issue this Final Written Decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 (2019). For the reasons set forth below, we determine that Petitioner has not shown that any of the challenged claims of the ’366 patent are unpatentable.

I. BACKGROUND

A. Procedural History

Petitioner filed a Petition requesting *inter partes* review of the challenged claims. Paper 1 (“Pet.”). Patent Owner filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Pursuant to 35 U.S.C. § 314, we instituted an *inter partes* review as to all challenged claims and all grounds raised in the Petition. Paper 7 (“Institution Decision” or “Inst. Dec.”).

After institution, Patent Owner filed a Response (Paper 17, “PO Resp.”), Petitioner filed a Reply (Paper 28, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 30, “PO Sur-reply”). Petitioner also filed a Motion to Strike (Paper 32) and Patent Owner filed a related Opposition (Paper 33). We denied Petitioner’s Motion to Strike, but authorized Petitioner to file a Sur-sur-reply addressing certain copying allegations that were the subject of the Motion to Strike. *See* Paper 34 (Order denying Motion to Strike); Paper 38 (Petitioner’s Sur-sur-reply). An oral hearing in this proceeding was held on June 8, 2023, and a transcript of the hearing is included in the record (Paper 43, “Tr.”).

B. Related Matters

In addition to this Petition, Petitioner filed petitions for *inter partes* review of three related patents—U.S. Patent Nos. 8,561,666 B2 (IPR2022-00544), 9,689,161 B2 (IPR2022-00545), and 9,797,134 (IPR2022-00546). Prelim. Resp. 3. Those patents, along with the '366 patent at issue here, are also the subject of an infringement action filed February 22, 2021 in *Molo Design Ltd. v. Chanel, Inc.*, No. 1:21-cv-01578 (S.D.N.Y). Pet. 2; *see also* Paper 4, 2. That action was stayed on May 2, 2022, pending the outcome of our review of Petitioner's Petition in this proceeding and the related proceedings. Prelim. Resp. 4 n.1.

C. The '366 Patent

The '366 patent relates to an “article of flexible furniture” having a core formed from laminar panels. Ex. 1001, code (57). We reproduce Figure 1 of the '366 patent below to illustrate the main components of the disclosed invention.

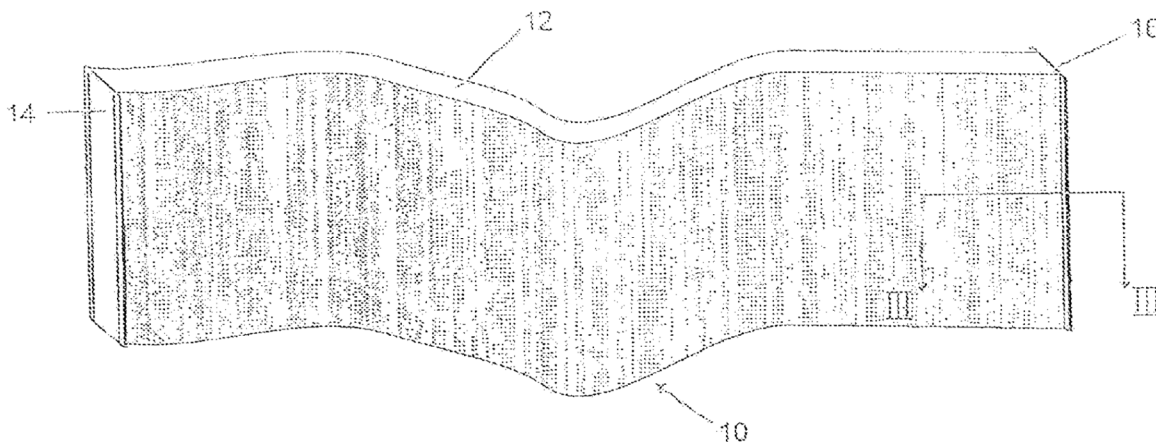


FIG 1

Figure 1 shows a front perspective view of partition 10 having “core 12 and a pair of supports 14, 16 at opposite ends of the core.” *Id.* at 2:20, 2:51–53,

Fig. 1. The '366 patent describes the core as “formed from a flaccid flexible material,” wherein “a cellular structure having voids 30 is formed within the core” upon movement of the oppositely-facing end supports away from each other in a horizontal direction. *Id.* at 2:54–56, 3:9–13, Figs. 3–5. According to the '366 patent, the core's end supports on opposite ends of the core “are made of a self-supporting material . . . , which has a degree of flexibility but also has sufficient rigidity to resist collapse of the core.” *Id.* at 2:51–53, 3:18–23, Figs. 4, 5. As a result, the supports can be “moved away from one another . . . to expand the core so that the cellular structure is opened within the core.” *Id.* at 3:39–42, Fig. 4(c).

According to the '366 patent, the structure of this extensible partition improves over prior art partitions that “are rigid, or have rigid frames, or are formed from rigid interconnected panels and . . . are relatively large, heavy, and cumbersome, and therefore difficult to set-up, take down, store, and transport.” *Id.* at 1:25–28. The inherent rigidity of such prior art partitions, the '366 patent explains, “limits the extent to which they can be dynamically resized (extended or contracted) and reshaped to suit varying spaces and requirements, or readily moved around for relocation, or storage.” *Id.* at 1:32–36.

Once expanded, the core “has sufficient width to remain stable in a vertical position with the rigidity provided by the end supports.” *Id.* at 3:60–62. The degree of flexibility of the core can “accommodate different configurations and allow an appropriate shaped and sized partition to be installed in an otherwise open space.” *Id.* at 4:2–5, Fig. 9. The provision of the end supports also permits multiple partitions “to be joined end-to-end” via hook and loop fasteners such as Velcro, or magnets. *Id.* at 3:30–33,

4:15–22, 5:10–23, Figs. 6–7, 13. The '366 patent also describes using the fasteners to join opposite edges of the end supports to enhance rigidity at each end of the partition. *See id.* at 3:46–51. We reproduce Figures 5(a) and 5(b) of the '366 patent to illustrate that tubular configuration.

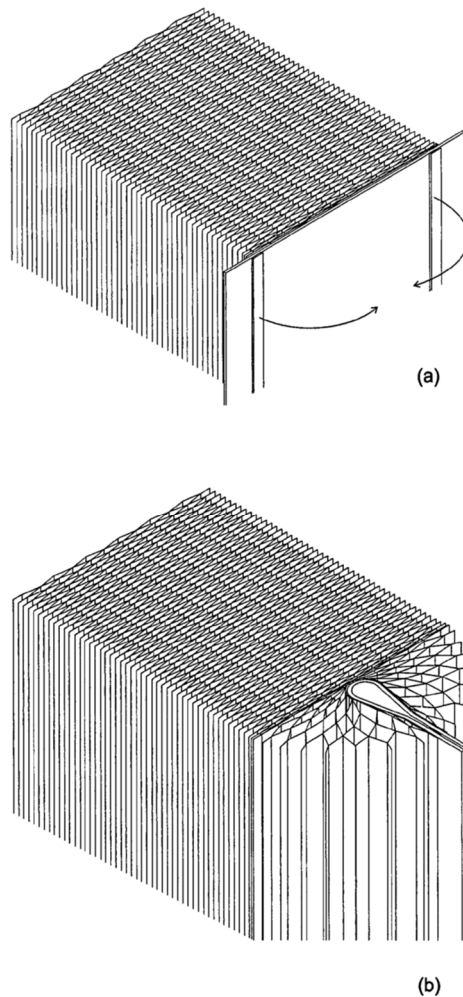


FIG 5

Figure 5(a), at the top, shows the end supports prior to bringing the opposite edges of the support together using strips of hook and loop (i.e., Velcro) fasteners, while Figure 5(b), at the bottom, shows the tubular configuration formed after the fasteners are used to hold the opposite edges together. *See id.* at 3:46–53. According to the '366 patent, the tubular configuration “provide[s] enhanced rigidity at each end of the partition.” *Id.* at 3:46–48.

D. The Asserted Challenges

Petitioner challenges claims 1–3, 5–11, 13, 16, 18, 20–25, and 27 on the following grounds (Pet. 7):

Claims Challenged	35 U.S.C. §	References/Basis
1–3, 5–11, 13, 16, 18, 20–25, 27	103	SoftHousing I, ¹ SoftHousing II, ² SoftHousing III, ³ Arens, ⁴ <i>and/or</i> Velcro ⁵
1–3, 5–11, 13, 16, 18, 20–25, 27	103	Kaisin I, ⁶ Kaisin II, ⁷ Kaisin III, ⁸ Arens, <i>and/or</i> Velcro
1–3, 5–11, 13, 16, 18, 20–25, 27	103	Okuno, ⁹ Arens, <i>and/or</i> Velcro

In further support of these challenges, Petitioner submits the declaration of Lance Rake. *See* Ex. 1003. Patent Owner, in turn, submits

¹ DBEW International Design Competition 2004, *Golden Prize*, HANSSEM CO., LTD., May 9, 2004 (Ex. 1005, “SoftHousing I”).

² *Design Beyond East & West—Collection of Winning Works of DBEW International Design Contest* (Interior Architecture of China Magazine ed.) TIANJIN UNIVERSITY PRESS, March 2004 (Ex. 1006, “SoftHousing II”).

³ *First Step Soft Housing*, Common Ground, Nov. 6, 2003 (Ex. 1007, “SoftHousing III”).

⁴ US 4,493,174, issued Jan. 15, 1985 (Ex. 1013, “Arens”).

⁵ Internet web page referring to “Velcro® brand products,” found at <https://web.archive.org/web/20040405170141/http://www.velcro.com/industrial/products.html> (Ex. 1012, “Velcro”).

⁶ Internet web page referring to “The Expandable Bench” designed by Charles Kaisin, found at <https://web.archive.org/web/20031127172226/http://www.vange.be/uk/product001.kaisin.html> (Ex. 1008, “Kaisin I”).

⁷ Internet web page referring to “2003 London Design Festival,” found at https://web.archive.org/web/20031015142412/http://www.core77.com/reactor/10.03_london_festival.asp (dated Oct. 15, 2003) (Ex. 1009, “Kaisin II”).

⁸ Excerpts from Architectures CREE Magazine No. 306 (2002-11), dated December 2002 (Ex. 1010, “Kaisin III”).

⁹ JP S49-87173 A, published Aug. 21, 1974 (Ex. 1011, “Okuno”).

declarations from each of the named inventors of the '366 patent and Alan Ball. *See* Exs. 2006, 2007, 2010.

E. The Challenged Claims

Claim 1, the only independent claim in the '366 patent, is illustrative and recites:

1. An article of flexible furniture having

[a] a core formed from a plurality of laminar panels of a flaccid material and each panel having a pair of oppositely directed major faces, adjacent faces of said panels being inter-connected to provide a cellular structure upon movement of abutting faces away from each other,

[b] a pair of supports at opposite ends of said core and connected to respective ones of said faces, said supports being self-supporting to provide rigidity to said core whereby said supports may be moved apart to expand said cellular structure and extend the length of said core and flexible so as to be foldable into a tubular configuration about an axis parallel to said major faces, and

[c] a plurality of fasteners on each of said supports to secure said supports in said tubular configuration and to permit connection to an adjacent support of another similar article.

Ex. 1001, 7:12–26 (bracketed material added).

II. ANALYSIS

A. Legal Standards

To prevail in its challenges, Petitioner must prove unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e) (2018); 37 C.F.R. § 42.1(d) (2018). “In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review

petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burdens of proof in an *inter partes* review).

Petitioner relies on obviousness in its challenges. A claim is unpatentable as obvious under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). 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 art; and (4) where in evidence, so-called secondary considerations, also known as objective indicia of non-obviousness. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966).

An obviousness analysis must include a reason, based upon rational underpinnings, why a person of ordinary skill would have been motivated to modify the prior art to achieve the claimed invention. *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“To satisfy its burden of proving obviousness, a petitioner . . . must . . . articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” (citing *KSR*, 550 U.S. at 418)). The requirement of a reason to combine is a safeguard against hindsight bias, which is characterized by

the “temptation to read into the prior art the teachings of the invention in issue.” *KSR*, 550 U.S. at 421 (quoting *Graham*, 383 U.S. at 36).

B. Level of Ordinary Skill in the Art

The level of skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). “The person of ordinary skill in the art is a hypothetical person who is presumed to know the relevant prior art” at the time of the invention. *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field. *Id.* In a given case, one or more factors may predominate. *Id.*

Petitioner argues, with support from its declarant, Mr. Rake, that one skilled in the art during the relevant time frame “would have a bachelor’s degree and at least two years of relevant experience working as an industrial designer, interior designer, furniture designer, architect, or other similar professional” and “would be knowledgeable regarding furniture design and/or the design of exhibit and display systems, and would have a general understanding of related manufacturing processes.” Pet. 24 (citing Ex. 1003 ¶¶ 41–44). Patent Owner does not contest Petitioner’s proposal, and Patent Owner’s declarant agrees with it. Ex. 2010 ¶ 34 (“I believe this is an accurate definition of a POSITA and have used this for my analysis.”); *see also* Pet. Reply 1 (“The parties agree on the POSITA and level of ordinary skill in the art.”).

We adopt Petitioner’s asserted level of ordinary skill because it is consistent with the problems identified and solutions provided in the ’366 patent and the prior art.

C. Claim Construction

Pursuant to 37 C.F.R. § 42.100(b), we construe the claims under the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). That is, the claim terms are generally given their plain and ordinary meaning as would have been understood by one skilled in the art at the time of the invention and in the context of the entire patent disclosure. *Id.* at 1312–13. Only terms in controversy need be construed, and only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Petitioner argues that we “need not construe any terms in order to resolve the underlying controversy” because “[a]ny reasonable interpretation of those terms—as understood by a POSITA at the time of the invention—reads on the prior art.” Pet. 25.

Patent Owner argues that Petitioner’s position that no terms need be construed in this proceeding conflicts with its approach in the parallel district court action, where Petitioner proposes specific constructions for “supports,” “self-supporting,” and “operable,” and argues that “flaccid” is indefinite. PO Resp. 19–21. According to Patent Owner, “[b]y failing to reconcile these positions, Petitioner has not met its burden to demonstrate how the terms should be construed as required by the Board’s regulations.” *Id.* at 20. Patent Owner contends that “Petitioner’s claim construction

positions on several terms are more than an elaboration of the final position taken in the district court proceeding” and “are demonstrably different than those taken in the district court proceeding.” *Id.* at 21. Patent Owner further contends that because claims must be construed the same way for invalidity and infringement, and “Petitioner explicitly or implicitly admits [its positions in district court] are directly relevant to validity,” Petitioner’s failure “to reconcile these contradictory positions” amounts to a failure to satisfy Petitioner’s burden to construe the claims. *Id.*

Petitioner argues that we already rejected Patent Owner’s “argument regarding supposed inconsistent claim construction positions” in the Institution Decision, and that we “should do so again” here. Pet. Reply 1 (citing Inst. Dec. 8–10).

In our Institution Decision, we noted that Patent Owner “neither proffers its own construction of these terms nor otherwise explains why Petitioner’s proposed construction is erroneous.” Inst. Dec. 9. Patent Owner takes the same approach in the Patent Owner Response. *See* PO Resp. 19–21. Rather than argue that Petitioner’s constructions are incorrect or propose its own constructions for these terms, Patent Owner contends that, by advancing “contradictory” claim construction positions before us and the district court, Petitioner “fails to satisfy its burden” of identifying how the challenged claims are to be construed. *Id.* at 21.

We disagree with Patent Owner’s characterization of Petitioner’s claim construction positions for generally the same reasons we set out in our Institution Decision. *See* Inst. Dec. 8–10. Petitioner certainly elaborates on its construction of certain claim terms in the parallel district court action more so than it does here, but that is because the district court action

involves issues that are outside the purview of this proceeding. The district court took a similar view when Patent Owner raised this identical argument in the district court action—“that [Petitioner] has engaged in gamesmanship by advancing conflicting arguments before the PTAB and this Court”—the district court explained that “it is neither uncommon nor impermissible for a party to advance different arguments before a District Court and the PTAB” where the parallel action “concerns issues outside the scope of *inter partes* review.” Ex. 3001 at 9 n.1. We agree—the issues of infringement and indefiniteness before the district court may require a more developed claim construction than is needed to resolve the issue of patentability here. Like the district court, we see nothing improper about Petitioner advancing a more detailed meaning of certain claim terms in the district court action, while simply saying here that the meaning of those terms is readily apparent or that no construction is necessary because the prior art discloses the limitations under any construction. We see no reason to incentivize petitioners to create claim construction issues that have no bearing on the challenges in the Petition.

While we do not agree with Patent Owner that Petitioner’s failure to repeat the same claim construction arguments here as it does in the district court amounts to a failure to meet its burden to construe terms, we acknowledge that if Petitioner’s claim construction proposals in the district court applied here, the constructions could, potentially, impact Petitioner’s arguments based on the prior art. *See* PO Resp. 21. But merely pointing out the potential for inconsistency does not reveal a meaningful contradiction that would support a determination that Petitioner failed to meet its burden. Patent Owner could have argued why Petitioner’s positions in the district

court are correct and that we should adopt them, or that if we adopted them, it would make Petitioner’s arguments in this proceeding more difficult, but Patent Owner does not make either argument here. *See id.* at 19–21.

Without any argument that Petitioner’s proposed approach here—not formally construing any of the terms—leads to an incorrect assessment of claim scope or that the differences in Petitioner’s approaches substantively matters when assessing Petitioner’s arguments in this proceeding, we cannot conclude that Petitioner failed to meet its burden in setting forth its claim construction positions.

Because the issue of whether Petitioner has proven unpatentability by a preponderance of the evidence can be resolved without expressly construing the claim terms “supports,” “self-supporting,” “operable,” and “flaccid,” we reject the notion that Petitioner somehow violated our rules by not developing a more explicit construction of those terms. In addition, because Patent Owner does not dispute Petitioner’s position that we need not formally construe any of the terms to address the issues in this proceeding or offer a competing construction, we need not construe any of these terms. *See, e.g., Nidec*, 868 F.3d at 1017 (approving Board decision not to construe claim language where the construction is not material to the dispute).

D. The SoftHousing-Based Challenges

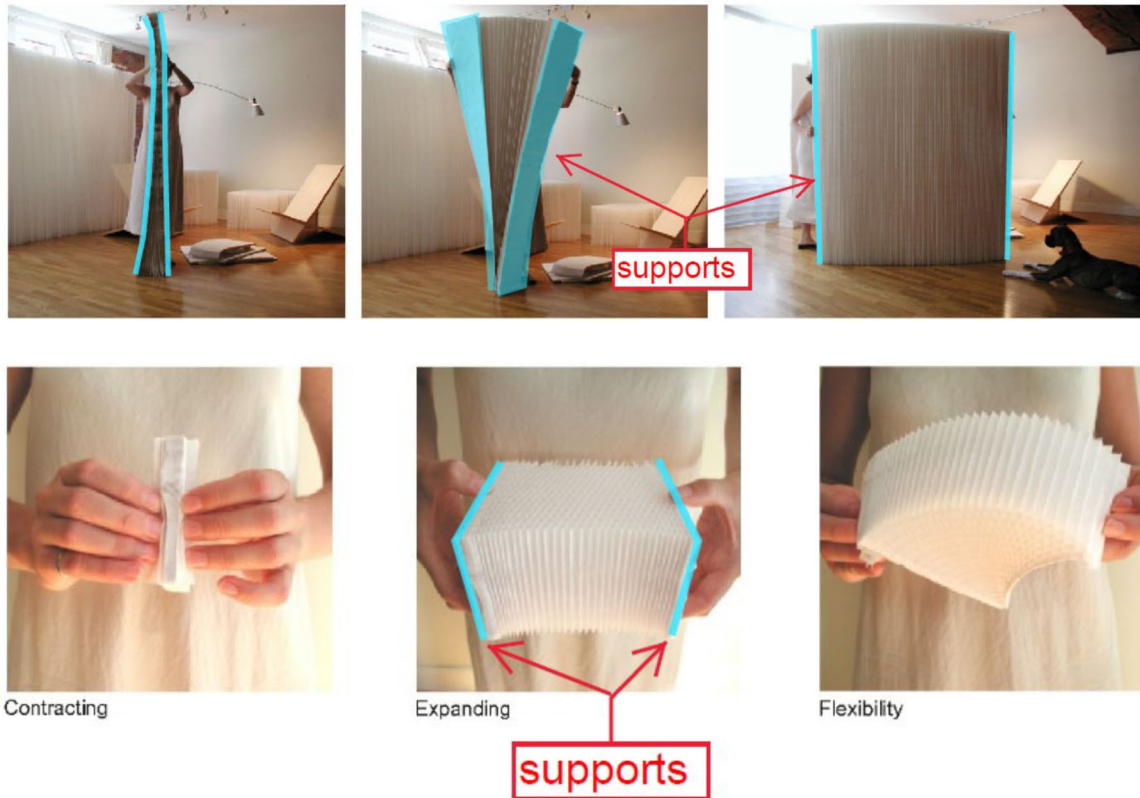
Petitioner argues that independent claim 1, as well as dependent claims 2, 3, 5–11, 13, 16, 18, 20–25, and 27, would have been “obvious over SoftHousing I standing alone in view of the knowledge of a POSITA, and, additionally, in view of SoftHousing II, SoftHousing III, Arens, and/or Velcro.” Pet. 25–41. Patent Owner raises a number of counterarguments. *See* PO Resp. 23–45.

Although all of Petitioner’s challenges encompass “SoftHousing I standing alone” as well as challenges based on less than all of the references due to the “and/or” language, we limit our analysis to a combination of all of the references listed in the challenge and assume, without deciding, that Petitioner set forth a reasonable motivation to combine the references. *See* Pet. 25–26. In so doing, we analyze Petitioner’s best possible arguments of unpatentability.¹⁰ We first provide an overview of the prior art, and then address the arguments and evidence.

1. Overview of the Prior Art

SoftHousing I is a submission to an international design competition that discloses a partition wall comprising a “soft, flexible honeycomb structure[] . . . made from 500 layers of a light, strong, white paper like material.” Ex. 1005, 1 (describing how the wall is made). SoftHousing I also describes the wall as being a “multi-layered 10 [inch] thick honeycomb wall[]” that can be “made from sheets of fine polyethylene fiber that is pressed into sheets” and “is lightweight yet strong, . . . puncture, tear, and abrasion resistant.” *Id.* We reproduce annotated photos of SoftHousing I from the Petition to show its general structure and appearance. *See* Pet. 29.

¹⁰ We take the same approach for the Kaisin-based and Okuno-based challenges below. The outcome of our analysis of each challenge would not change if we viewed the challenges as including other potential combinations of references.



The three annotated photographs at the top show a woman (one of the inventors Ms. Forsythe) holding the partition wall in a vertical position, with the end panels highlighted in blue by Petitioner and labelled “supports.” *Id.* The three annotated photographs at the bottom show a smaller, hand-held model of the design that shows the design “[c]ontracting” (on the left), “[e]xpanding” (in the middle), and “[f]lexibility” (on the right), with the middle photograph also including end panels highlighted in blue and labelled “supports.” *Id.* SoftHousing II and III include some or all of the same photographs of the design. *See id.* at 30; Ex. 1005, 1; Ex. 1006, 12 (showing the same photographs); Ex. 1007, 2 (showing the same three photographs at the bottom of the annotated figures above).

The parties do not dispute that SoftHousing I, II, and III all disclose the same general design.¹¹ For ease of reference, we will typically refer to “SoftHousing” when referring to structures common to all three references and where any distinctions between the references do not impact the outcome of our analysis.

There are some differences in the SoftHousing disclosures. For example, SoftHousing I and II note that the partitions provide “an opportunity for LED or fluorescent lighting to be located within the thickness of the walls.” Ex. 1005, 1; Ex. 1006, 10; Ex. 1007. In addition, SoftHousing III focuses on a larger, room-size embodiments that incorporate an integral bed and lounge, and states that “(Velcro) fastenings attach unit to perimeter wall.” Ex. 1007, 2.

Arens discloses a “knock-down room divider” that includes “a series of posts and panels” that are “releasably engageable.” Ex. 1013, code (57). Figure 1 of Arens, reproduced below, shows the room divider.

¹¹ Petitioner asserts that SoftHousing II and III disclose aspects of claim 1 that SoftHousing I discloses. *See* Pet. 27–28, 30 n.8, 34 (referring to all three of SoftHousing I–III). We view all three references as referencing the same general design with substantial overlap in content. In some cases, the text and images appear to be the same but presented in a different format. *See* Ex. 1005, 1 (SoftHousing I) (including description of flexible honeycomb structures and including small images to the right of author photographs); Ex. 1006, 10 (SoftHousing II) (including description of flexible honeycomb structures and image that is the same as the first image shown in Ex. 1005, 1), 11–12 (showing images that appear to be the same as small images in Ex. 1005, 1); Ex. 1007, 2 (showing additional images of design, with some images the same as those in Ex. 1005, 1 and Ex. 1006, 12).

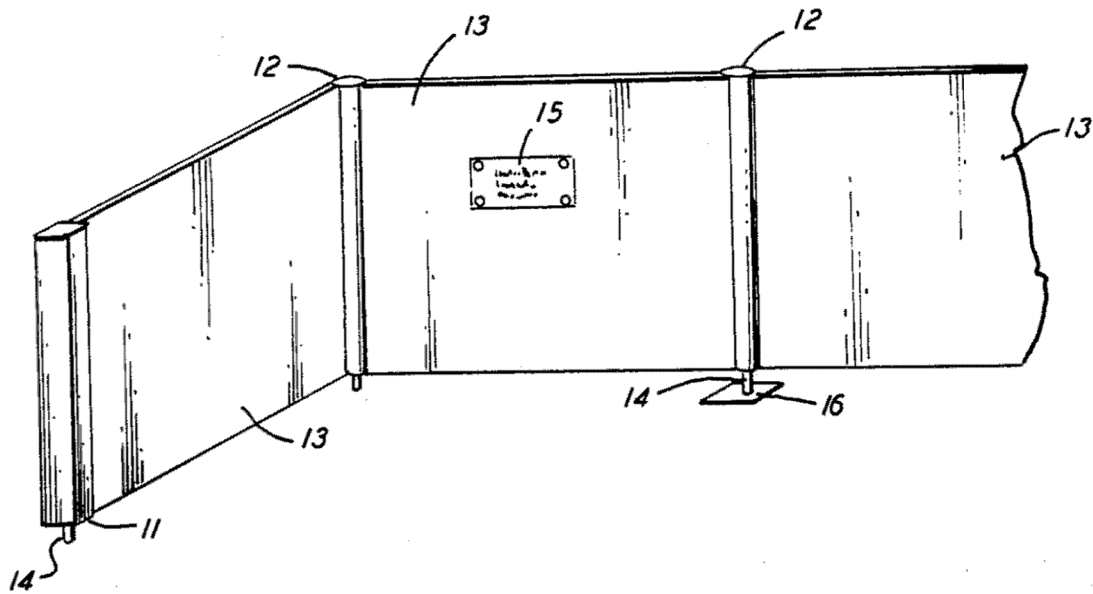


Figure 1 depicts panels 13 supported by posts 11, 12. Ex. 1013, 2:3–4. Arens states that the elongated edges of panels 13 accept fastening fabric, “which mates in a releasable engageable manner with the complementary fabric on the surfaces of the posts 11 and 12.” *Id.* at 2:27–30, Fig. 1. We reproduce Figure 3 of Arens to show the fastening fabric on the panels.

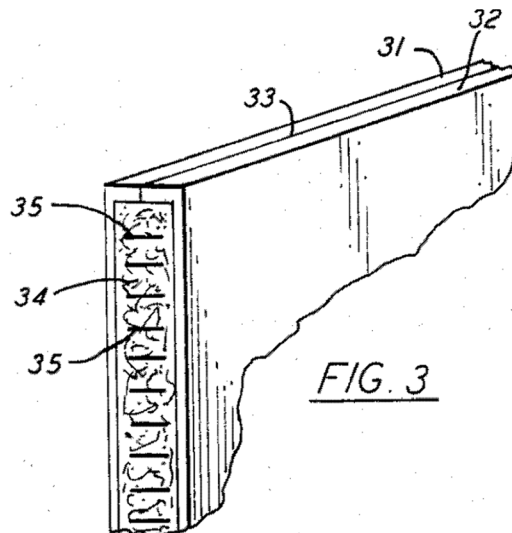


Figure 3 depicts panel member 13 with fastening fabric 34 attached to the vertical, elongated edge of the panel using staples 35. Ex. 1013, 3:2–5.

Arens describes the releasable fabrics as “Velcro fabrics.” *Id.* at 2:54–56, 3:5–7.

Velcro discloses general Velcro hook and loop fasteners for a variety of applications. Ex. 1012. For example, Velcro discloses straps that “allow for easy cable and cord management” and “Bundle Ties [that] are ideal for quick, disposable strapping applications.” *Id.* at 2.

2. The Parties’ Arguments

We focus our analysis on claim 1, the only independent claim, and in particular the limitations requiring “supports” that are “foldable into a tubular configuration” and “fasteners on each of said supports to secure said supports in said tubular configuration” (the “fasteners limitation”).

As to independent claim 1, Petitioner relies on SoftHousing I’s “flexible honeycomb structures” and “[f]lexible partition walls made from the same material” as disclosing claim element (a) requiring “a core formed from a plurality of laminar panels of a flaccid material,” with each panel having major and adjacent faces. Pet. 26–29 (relying on Ex. 1003 ¶¶ 105–107; Ex. 1005). Petitioner also relies on the images in SoftHousing I as disclosing claim element (b) requiring “a pair of supports at opposite ends” of the core that are “self-supporting to provide rigidity” and “flexible so as to be foldable into a tubular configuration about an axis parallel to” the major faces of the core. *Id.* at 29–34 (relying on Ex. 1003 ¶¶ 81, 91–94, 108–116; Ex. 1005). Petitioner contends that the images show sufficiently rigid supports to resist collapse and yet sufficient flexibility to allow the supports to be folded into the claimed “tubular configuration” as shown in the ’366 patent. *Id.* at 30–34 (arguing that the images need not depict the tubular configuration to satisfy the claim limitation, which merely requires

the ability to be “foldable” into a tubular configuration). According to Petitioner, “[a] POSITA would have been motivated to fold the supports into a tubular configuration for functional reasons, such as when additional stability was desired, and/or for aesthetic reasons, such as when curved or rounded ends fit better with other elements of the environment in which the partition was being used.” *Id.* at 33–34 (citing Ex. 1003 ¶¶ 81, 91); *see also id.* at 34 (“Folding the supports in a tubular configuration would have been nothing more than a predictable variation on what was depicted in *SoftHousing I*. It was obvious to try for functional and/or aesthetic reasons, and a POSITA would have had a reasonable expectation of success using the flexible supports highlighted in *SoftHousing I*.” (citing Ex. 1003 ¶¶ 108–16)).

As to claim element (c), Petitioner acknowledges that *SoftHousing I* does not disclose the claimed “fasteners,” but argues that *SoftHousing III* discloses adding Velcro fasteners to attach the partition to a wall. Pet. 34 (citing Ex. 1007). According to Petitioner, it would have been obvious to modify *SoftHousing I* “to include fasteners on the supports when a POSITA wanted to fold the ends of the partition in a tubular configuration, as described above, to connect multiple partitions together . . . as disclosed in *Arens*, or to attach the partition disclosed in *SoftHousing I* to a wall.” *Id.* at 34 (citing Ex. 1007). Petitioner further contends that adding fasteners “would require only trivial effort,” and that a POSITA would have been motivated to add fasteners “to achieve the tubular aesthetics, to link multiple partitions, or to terminate a partition and affix it on/at a wall.” *Id.* at 35 (citing Ex. 1003 ¶¶ 86–88, 118). Petitioner further argues that (1) fasteners were well-known in the industrial design and furniture art for decades,

(2) Velcro discloses well-known hook-and-loop fasteners, and (3) Arens discloses the use of Velcro to join multiple partitions together. *Id.* (citing Ex. 1001, 3:30–33; Ex. 1003 ¶¶ 86–88, 119; Ex. 1012; Ex. 1013). Finally, Petitioner argues that “[u]sing fasteners such as Velcro for their intended purpose to releasably secure together articles or portions . . . thereof was merely ‘the predictable use of prior art elements according to their established functions.’” *Id.* (quoting *KSR*, 550 U.S. at 401).

Patent Owner raises a number of arguments against the SoftHousing-based challenge. *See* PO Resp. 23–45. As to the tubular configuration issue, Patent Owner argues that Petitioner ignores the requirement that the claimed supports be both self-supporting as well as foldable into a tubular configuration. *Id.* at 33–38. According to Patent Owner, none of the images or text in SoftHousing “illustrate or even mention a ‘foldable’ end of any structure.” *Id.* at 35. Patent Owner also contends that “[t]here is no evidence in the SoftHousing reference to motivate a POSITA to fold any alleged supports into a tubular configuration.” *Id.* at 37 (citing Ex. 2010 ¶ 124). As to Petitioner’s stated motivations for folding the SoftHousing end panels into a tubular configuration, Patent Owner argues that Petitioner fails to “cite[] any additional evidence, reasoning, or understanding of a ‘tubular configuration’ providing stability, other than Mr. Rake’s unsupported and conclusory statements” and that “aesthetic reasons” amounts to an improper “design choice” argument that states a conclusion without adequate reasoning. *See id.* Patent Owner further contends that Arens does not aid Petitioner because Arens uses rigid panel ends that “cannot be folded into a tubular configuration.” *Id.* at 40–41 (citing Ex. 1013, Figs. 1, 3). Patent Owner also takes issue with Petitioner’s

reliance on SoftHousing III’s use of Velcro and Petitioner’s reliance on the Velcro reference to meet the claimed “fasteners” limitation, because using Velcro to attach a partition to a wall as in SoftHousing III underscores Patent Owner’s argument that the partitions were not self-supporting on their own. *Id.* at 41–43 (citing Ex. 1007, 2; Ex. 2010 ¶ 125).

In its Reply, as to the “foldable in a tubular configuration” limitation, Petitioner argues that (1) it need not show that the end panels are actually folded; (2) that folding the paper would be the “first thing a designer would try,” especially if the partitions were unstable as the inventors state; and (3) that the aesthetic and functional reasons previously discussed would motivate a POSITA to fold the end panels. Pet. Reply 24–25 (citing Ex. 1003 ¶ 116). As to the “fasteners” limitation, Petitioner argues that Patent Owner focuses too “narrowly on the tubular configuration” and contends that “the claim language recites a second, alternative function that the fasteners must be capable of performing: ‘to permit connection to an adjacent support of another similar article.’” *Id.* at 28. Petitioner further contends that using fasteners, as disclosed in SoftHousing III and Arens, to connect articles to walls or other articles, supports its argument that connecting adjacent partitions using fasteners would have been obvious. *Id.* at 28–29 (citing Ex. 1003 ¶¶ 86–88; Ex. 1005, 2; Ex. 1013; Ex. 1014). Lastly, Petitioner argues that it would have been obvious “to fold the end supports into a tubular configuration” and that the “addition of a prior art fastener to secure them in this position” employed a predictable and well-known approach. *Id.* at 29–30.

In its Sur-reply, Patent Owner argues that a POSITA would not have been motivated to fold SoftHousing’s end panels into a tubular configuration

for aesthetic or functional reasons, as Petitioner proposes. PO Sur-reply 15–16. As to the functional basis for the motivation, Patent Owner contends that Petitioner raises an improper new theory, without any evidentiary support, when it argues that “folding paper is a well-known way to enhance structure.” *Id.* at 16 (citing Pet. Reply 25). Patent Owner also argues that the inventors testified that the SoftHousing prototypes used material that was too fragile to be folded into supports, and that it was not until more rigid end panels were developed that the ends could be folded and self-supporting. *Id.* at 16–17 (citing Ex. 1049, 55:24–56:14). As to the fasteners, Patent Owner contends that Petitioner improperly suggests that SoftHousing I and II depict end supports placed together in a manner that suggests they were fastened together. *Id.* at 18–19 (citing Ex. 1007, 2; Ex. 1029, 49:17–50:7). Finally, Patent Owner argues that the “only motivation a POSITA has to ignore these teachings and conclude that the ‘fasteners’ briefly mentioned in the SoftHousing references can ‘secure said supports in said tubular configuration’ is hindsight from the ’366 Patent itself.” *Id.* at 20 (citing Ex. 2010 ¶ 125).

3. Discussion

Claim 1 requires “supports” at the ends of the core that are “flexible so as to be *foldable into a tubular configuration*” and “*fasteners on each of said supports to secure said supports in said tubular configuration* and to permit connection to an adjacent support of another similar article.” Ex. 1001, 7:17–26 (emphasis added). We first address our understanding of the scope of these limitations. Neither party proposes any formal construction of any claim terms or asks us to resolve any claim construction dispute. Petitioner contends, and Patent Owner does not dispute, that the “foldable”

language in the first limitation merely requires the capability to be folded into a tubular configuration, not that the support must be shown in that configuration. *See* Pet. 32; Pet. Reply 24; Tr. 39 (Patent Owner’s counsel stating that the “claim limitation that says foldable does discuss capability”). We agree. At the oral hearing, the parties disputed whether the “mere capability” approach also applied to the “fasteners” limitation. *See* Tr. 12:13–13:8 (Petitioner’s counsel arguing that fasteners limitation requires only capability to secure supports in claimed configuration), 39:7–15 (Patent Owner’s counsel arguing that fasteners limitation requires support “to be in that tubular configuration”). The parties did not brief that issue, however, and we need not resolve it because the outcome remains the same even if we apply Petitioner’s broader approach to the claims. Even using that broader approach, claim 1 still requires not only supports having the capability to be folded into a tubular configuration but also fasteners having the capability to both “secure said supports in said tubular configuration *and* to permit connection to an adjacent support of another similar article.” Ex. 1001, 7:23–26 (emphasis added).

We next turn to our interpretation of Petitioner’s challenges as to these limitations, and more specifically whether Petitioner needs to rely on its argument that one of ordinary skill in the art would have been motivated to create the claimed tubular configuration. As summarized in detail above, Petitioner argues that the SoftHousing prior art includes so-called “supports” at the ends of the partition that are sufficiently flexible that it would have been readily apparent to a POSITA that they could be folded into a tubular configuration (even though they are not shown in that configuration), and that a POSITA would have been motivated to fold the end panels into a

tubular configuration for functional (“additional stability”) and aesthetic reasons (“when curved or rounded ends fit better with other elements in the environment”). Pet. 30–34 (citing Ex. 1003 ¶¶ 81, 91–94, 108–116). As to the fastener limitation, Petitioner argues that it would have been obvious to modify the SoftHousing partitions “to include fasteners on the supports *when a POSITA wanted to fold the ends of the partition in a tubular configuration, as described above*, to connect multiple partitions together to extend the benefits provided by a single unit into a larger space without interruption, as disclosed in Arens, or to attach the partition disclosed in SoftHousing I to a wall.” *Id.* at 34–35 (emphasis added) (citing Ex. 1003 ¶¶ 86–88, 118; Ex. 1007). Petitioner cites the use of Velcro in the Velcro and Arens references as a suitable fastener. *Id.* at 35 (citing Ex. 1001, 3:30–33; Ex. 1003 ¶¶ 86–88, 119; Ex. 1012; Ex. 1013).

We interpret the Petition as requiring a motivation to fold the SoftHousing end panels into a tubular configuration as part of Petitioner’s argument because the Petition presents it as such and it forms a necessary predicate to Petitioner’s argument that adding fasteners to SoftHousing would have been obvious. *See id.* at 33–35. In its Reply, Petitioner argues that it need not show that motivation to establish that the SoftHousing end panels are “foldable” into a tubular configuration. Pet. Reply 24. We agree with respect to the “foldable” language in isolation, but that does not change the fact that Petitioner’s arguments as to the “fasteners” limitation rely on the premise that a POSITA already “*wanted to fold the ends of the partition in a tubular configuration, as described above*,” i.e., as described in the motivation arguments Petitioner sets forth in connection with the “foldable” limitation. *See* Pet. 35 (emphasis added); Pet. Reply 29 (“*As described*

above, it would have been obvious to fold the end supports into a tubular configuration” and the “addition of a prior art fastener to secure them in this position is nothing more than a predictable use of prior elements for their established functions.” (emphasis added)).

Even if we consider an argument that claim 1 would have been obvious without considering whether a POSITA would have been motivated to fold the SoftHousing end panels into a tubular configuration, we would not find that argument convincing. None of the prior art at issue here discloses partition end panels that are semi-circular as in the design the '366 patent discloses, much less flexible panels folded into that configuration. Instead, both SoftHousing and Arens disclose end panels having unfolded, planar surfaces, and the Velcro reference does not teach partitions at all. *See* Ex. 1005, 2; Ex. 1006, 11; Ex. 1007, 2; Ex. 1012, 2; Ex. 1013, Fig. 3; PO Resp. 34–35; Ex. 2010 ¶ 124. Further, merely adding the Velcro teachings from SoftHousing III, Arens, or the Velcro reference to the planar end panels of SoftHousing would not necessarily satisfy the claim limitation requiring a fastener capable of securing supports in a tubular configuration, and Petitioner does not explain how that modification meets that aspect of the fasteners limitation without the premise that a POSITA would have been motivated to form a tubular configuration. *See* Pet. 34–35 (citing Ex. 1003 ¶¶ 86–88, 118). The cited declarant testimony repeats the same language from the Petition when addressing why modifying SoftHousing to include fasteners would have been obvious (i.e., the fasteners would have been obvious only when a POSITA already “wanted” to form the tubular configuration). *See* Ex. 1003 ¶ 118. Neither the Petition nor supporting declarant set forth a coherent argument that adding fasteners capable of

securing a folded support in a tubular configuration would have been obvious merely by adding Velcro to the end panels of the honeycomb core in SoftHousing's partitions.

A brief review of how fasteners on supports work in this context, when forming a tubular configuration or attaching to adjacent supports, underscores the necessity for further explanation and argument from Petitioner on these points. SoftHousing III suggests using Velcro to attach the planar end of its partition to a wall, while Arens teaches using Velcro to attach a planar end of a panel to a post. Ex. 1007, 2; Ex. 1013, 2:54–56, Fig. 3. Velcro fabrics could help secure the ends of the partitions in those situations by placing the “hook” Velcro fabric on the end and the “loop” Velcro fabric on the adjacent wall, or vice versa, but in either case each has the same type of Velcro fabric on it. Although neither SoftHousing III nor Arens provides that level of detail, Arens suggests such an approach by describing and showing a seemingly homogenous fabric 34 (i.e., all hook or all loop fabric) attached to the end of its panel using staples 35. *See* Ex. 1013, 3:2–7, Fig. 3. That arrangement will not, however, allow the fabric to adhere to itself to form a tubular configuration because all “hook” or all “loop” Velcro fabric will not attach to each other.

The '366 patent addresses the need to arrange fasteners in different manners when attaching the support to an adjacent support or to itself to form a tubular configuration. The '366 patent describes using Velcro as well as magnets as the claimed fasteners. *See* Ex. 1001, 3:30–33, 3:46–53, 4:19–22, 4:42–45, 5:9–61. Magnets have north and south poles that attract to one another, and the '366 patent describes orienting magnets 142 “such that a common polarity [i.e., the same polarity] is present for all magnets on one

face” of the support when connecting partitions to one another, “by relying upon the magnetic attraction between the opposite poles of adjacent partition[s].” *Id.* at 5:19–34. The ’366 patent goes on to state that magnets can be used to also secure a flexible support in a tubular configuration “provided that the orientation of the magnets is such that one column has a north polarity and the other column [on the same support] has a south polarity.” *See id.* at 5:52–58, Fig. 13 (showing magnets 142 in two columns). In other words, one arrangement of fasteners for connecting adjacent supports (e.g., all magnets on each support with the same polarity or Velcro with the same hook/loop fabric) will not have the ability to secure a foldable support into a tubular configuration, and different arrangements are necessary to achieve this capability. Accordingly, merely adding the Velcro teachings from SoftHousing III and Arens will not satisfy the requirement that the fasteners must be capable of securing a foldable support in a tubular configuration. Petitioner and its declarant do not acknowledge the different approach required in order to render the Velcro capable of securing a support in a tubular configuration or explain how the Velcro positioning used in SoftHousing III and Arens would need to be altered to meet this claim limitation.

Turning to Petitioner’s arguments for the motivation to fold the SoftHousing end panels into a tubular configuration, we first address Petitioner’s “functional” motivation—that such a modification would be desirable because it would provide additional stability. Pet. 33; Ex. 1003 ¶ 116 (same). Neither Petitioner nor its declarant provide any support for this assertion, by pointing to other evidence or providing further explanation as to how a folded, tubular end panel enhances stability over a planar tend

panel on the end of an expanded core, and the argument amounts to an unsupported conclusion. *See* Pet. 33; Ex. 1003 ¶¶ 81, 91–94, 108–116.¹² The only evidence in the record as to the additional stability provided by folding the SoftHousing end panels into a tubular configuration comes from the '366 patent and the inventors themselves, and Petitioner's conclusory argument along the same lines rings of hindsight. *See* Ex. 1001, 3:46–53; Ex. 1049, 26:12–24; Ex. 2011 ¶¶ 11, 22, 24; *see also* PO Resp. 36–37 (arguing against Petitioner's "functional reasons" for the modification); Ex. 2010 ¶ 126 (arguing no motivation to modify SoftHousing I to arrive at the claimed invention).

We next address Petitioner's argument that a POSITA would be motivated to fold the SoftHousing end panels into a tubular configuration for "aesthetic" reasons—"such as when curved or rounded ends fit better with other elements of the environment in which the partition was being used." Pet. 33–34 (citing Ex. 1003 ¶¶ 81, 91). Petitioner and its declarant again provide no support for this argument that would explain why a POSITA would recognize the improved aesthetics for the reasons provided. *See* Pet. 33–34; Ex. 1003 ¶¶ 81, 91–94, 108–116. In addition, the single sentence of analysis lacks sufficient explanation as to how curved or rounded ends may "fit better" with other elements and why curved or rounded ends would be viewed as more visually pleasing than planar ends. *See* Pet. 33–34; Ex. 1003 ¶ 116. Given that the prior art SoftHousing I design, with its

¹² The end panels in the SoftHousing prior art, without being folded into a tubular configuration, are, according to Petitioner, sufficiently stable to render them "self-supporting" as required by claim 1. *See* Pet. 29–30.

planar ends, was sufficiently aesthetically pleasing to be submitted for a design competition by the inventors (winning a “Golden Prize”), it was incumbent upon Petitioner to do more than make an unsupported reference to “aesthetic” reasons as a foundation for the proposed modification based on improved aesthetics. *See* Ex. 1005, 1.

Based on the foregoing, we find that Petitioner fails to prove by a preponderance of the evidence that one of ordinary skill in the art would have been motivated to modify the SoftHousing references to fold the end panels of the honeycomb core into a tubular configuration or to add fasteners in a manner that would render them capable of being secured in that tubular configuration.

4. Conclusion

We find that Petitioner’s proposed modifications to and combination of SoftHousing I, SoftHousing II, SoftHousing III, Arens, and Velcro do not disclose all of the limitations of independent claim 1. We find that we need not reach Patent Owner’s alleged objective indicia of nonobviousness arguments because even if Patent Owner submitted no such evidence or failed to establish a nexus or any persuasive objective indicia evidence, our conclusion as to the obviousness of claim 1 would not change. Based on the foregoing, we are not persuaded that Petitioner proved by a preponderance of the evidence that claim 1 of the ’366 patent is unpatentable as obvious based on the combination of SoftHousing I, SoftHousing II, SoftHousing III, Arens, and Velcro.

The remaining claims subject to this challenge all ultimately depend from claim 1. Petitioner’s challenges to these dependent claims do not remedy the deficiencies in its challenge to claim 1. *See* Pet. 36–41.

Accordingly, for the same reasons we address in the context of claim 1, we are not persuaded that Petitioner proved by a preponderance of the evidence that any of dependent claims 2, 3, 5–11, 13, 16, 18, 20–25, and 27 of the '366 patent is unpatentable as obvious based on the combination of SoftHousing I, SoftHousing II, SoftHousing III, Arens, and Velcro.

E. The Kaisin-based Challenges

Petitioner argues that independent claim 1, as well as dependent claims 2, 3, 5–11, 13, 16, 18, 20–25, and 27, would have been obvious over Kaisin I, Kaisin II, Kaisin III, Arens, and Velcro. Pet. 42–57. Patent Owner raises a number of counterarguments. See PO Resp. 45–56. We first provide an overview of the prior art, and then address the arguments and evidence.

1. Overview of Kaisin I, II, and III

Kaisin I–III generally disclose an expandable bench made from polypropylene or newspaper in a honeycomb structure that allows for flexible furniture arrangements. See Ex. 1008, 2; Ex. 1009, 5; Ex. 1010, 4. The images from Kaisin I reproduced below illustrate the bench designs. Ex. 1008, 2.



The images above include an image on the left showing the expandable bench in an upside-down U-shaped configuration with the ends on the floor and a circular orientation with the ends of the bench meeting. *See* Ex. 1008, 2 (upside-down U shape). The images on the right show the bench in an S-shape as well as a wide upside-down U shape. Kaisin II and III contain similar images. *See* Ex. 1009, 5 (circular shape); Ex. 1010, 4 (wide upside-down U shape). We will refer to the Kaisin references collectively as “Kaisin” for ease of reference, unless otherwise noted.

2. Discussion

The parties’ arguments and evidence, and our analysis, generally track the arguments, evidence, and analysis provided above in the context of the SoftHousing-based challenges.

As to the “foldable into a tubular configuration” limitation, Petitioner argues that the ends of the Kaisin bench are “supports” that are sufficiently flexible to be folded into a tubular configuration and that Petitioner need not show that they are actually configured in that shape. Pet. 48–49 (citing Ex. 1001, 3:46–56, 4:40–42, Fig. 5(b); Ex. 1003 ¶¶ 91–94, 143–150; Ex.

1009; Ex. 1010); *see also* Pet. Reply 30–31. Petitioner also argues that a “POSITA would have been motivated to fold the supports into a tubular configuration for functional reasons, such as when additional stability was desired, and/or for aesthetic reasons, such as when curved or rounded ends fit better with other elements of the environment in which the partition was being used.” Pet. 50 (citing Ex. 1003 ¶¶ 149–50). As to the fasteners limitation, Petitioner argues that Kaisin I does not disclose the fasteners but a related section of the website describes using clips to attach the bench into a circular shape or to attach one bench to another. *Id.* at 50–51 (citing Ex. 1019). Petitioner also argues that “it would have been obvious to modify the expandable bench in Kaisin I to include fasteners on the supports when a POSITA wanted to fold the ends of the bench in a semicircular tubular configuration, as described above, or to connect multiple articles together, as disclosed in Arens.” *Id.* at 51 (citing Ex. 1003 ¶¶ 86–88, 151–53).

Patent Owner first argues that Petitioner’s argument that the flat end faces of the Kaisin embodiments include foldable supports lacks evidence. PO Resp. 45–52. As part of that argument, Patent Owner relies on its previous argument that Petitioner fails to show any motivation to achieve the tubular configuration for functional or aesthetic reasons. *Id.* at 52 (citing same argument in context of SoftHousing challenges). As to the fasteners limitation, Patent Owner argues that the Kaisin I website does not disclose how the clips are used and provides no justification to modify Kaisin for the reasons Petitioner provides. *Id.* at 52–53. According to Patent Owner, Petitioner’s argument that a POSITA would add the fasteners when a POSITA wanted to fold the end faces into a tubular configuration fails for “similar reasons argued above” (i.e., lack of motivation to fold the ends in

that manner). *Id.* at 53–54. Patent Owner further contends that “[t]here is no teaching or suggestion in Kaisin I or the other Kaisin references that the ends are foldable into a tubular configuration” and “even less evidence or reasoning that a POSITA would be motivated to add ‘a plurality of fasteners on each of said supports to secure said supports in said tubular configuration.’” *Id.* Finally, Patent Owner argues that Petitioner’s argument that one would connect the Kaisin benches end-to-end lacks evidentiary support. *Id.* at 54.

As an initial matter, our analysis of Petitioner’s inability to provide an adequate motivation to fold the end faces of an expanded honeycomb core into a tubular configuration above applies with at least equal force here. Petitioner again relies on a motivation to fold the end faces of Kaisin into a tubular configuration based on the same functional and aesthetic reasons it provides in the context of the SoftHousing-based challenges, and uses that motivation as a premise for its argument that adding fasteners to secure the end faces in that configuration would have been obvious. *See* Pet. 49–51 (Ex. 1003 ¶¶ 86–88, 91–94, 143–153). Petitioner’s “functional reason”—to provide “additional stability” when desired—makes even less sense when applied to Kaisin’s low-slung bench than when applied to the SoftHousing partitions. *See* Ex. 1005, 2. Petitioner and its declarant fail to explain adequately, with any citation to evidence, why the Kaisin benches need additional stability or how folding the end faces into a tubular configuration would provide that additional stability when compared to maintaining the planar ends in the Kaisin design. *See* Pet. 50; Ex. 1003 ¶ 150. Petitioner and its declarant also fail to explain or support the assertion that the tubular configuration would improve the aesthetics of Kaisin’s bench over the

existing design. *See* Pet. 50; Ex. 1003 ¶ 150. In addition, the references to adding Velcro fasteners from Arens or the Velcro reference fail to remedy these deficiencies, as Petitioner’s argument predicates the use of those fasteners on a POSITA already wanting the end faces in a tubular position. *See* Pet. 51; Ex. 1003 ¶ 151–153. Petitioner and its declarant also fail to explain how these fasteners would be added so that they are capable of both securing the end faces in a tubular configuration and connect multiple adjacent end faces together. *See* Pet. 51; Ex. 1003 ¶ 151–153. Petitioner also notes the disclosure of “clips” in Kaisin, but does not argue let alone establish that such clips are “fasteners *on each of said supports*” or explain how they are capable of securing the end faces in a tubular configuration as claim 1 requires. *See* Pet. 50–51.

The foregoing analysis finds Petitioner’s argument and evidence lacking as to the motivation to fold Kaisin’s end faces into a tubular configuration, and, therefore, establish that the proposed combination discloses fasteners capable of securing the end faces in that configuration, assuming that the end faces themselves are foldable into a tubular configuration. But we also find Petitioner’s arguments and evidence as to the foldability of the Kaisin benches lacking. Unlike the SoftHousing partitions, which can be seen draped over an arm in a flaccid form when in a collapsed state, there are no images in Kaisin suggesting that the end faces of the bench are flexible or supple enough to be folded into a tubular configuration. *See* Ex. 1005, 2; PO Resp. 29 (showing SoftHousing partition draped over an arm (citing Ex. 1014, 4), 45–50 (arguing that Kaisin does not disclose foldable end supports)); Ex. 1008, 2 (showing Kaisin benches in various configurations but always with planar ends).

Petitioner attempts to rely on the materials used to make the Kaisin benches, “newspaper or polypropylene,” as support for its argument that the end faces would have been “flexible enough to be folded into various configurations when desired, including the tubular configuration.” Pet. 49 (citing Ex. 1001, Fig. 5(b); Ex. 1003 ¶¶ 91–94, 143–150). The degree of flexibility using those materials, however, would depend on the thickness of the end faces, and Petitioner and its declarant do not point to any thickness, method of manufacture, or other properties in Kaisin that would indicate the degree of stiffness or flexibility of Kaisin’s end faces. *See id.*; Ex. 1003 ¶¶ 91–94, 143–150; PO Resp. 50–52 (arguing that Petitioner’s interpretation of “compressed, glued newspaper” used in Kaisin lacks support (citing Ex. 1010, 4; Ex. 2010 ¶ 158)).¹³ In addition, the mere fact that Kaisin shows a *core* flexible enough to form curves does not suggest that the end *faces* would have the same flexibility, especially when the end faces in those same embodiments are shown in a flat, planar state. *See* Pet. 49–50; Ex. 1003 ¶ 150; Ex. 1008, 2; Ex. 1009, 5; Ex. 1010, 4. Rather than seeking flexible end faces, as Petitioner assumes, Kaisin’s designer could have sought stiff end faces without any flexibility to provide added support and to maintain the planar shape and reduce gaps when the end faces abut a planar floor or

¹³ Petitioner’s declarant states that because Kaisin mentions newspaper and polypropylene as the materials used in the bench, and the ’366 patent states that the core and supports may be made from the same material, Kaisin’s supports must be made from newspaper and polypropylene. *See* Ex. 1003 ¶ 149. Using the ’366 patent as a roadmap to find disclosures in the prior art that are not there lacks credibility, but even if we assume that the supports are made from newspaper or polypropylene, that does not teach any inherent degree of flexibility of the supports.

when the end faces abut one another in a circular configuration. *See* Ex. 1008, 2 (showing upside-down U shape with end faces flat on the floor); Ex. 1009, 5 (showing circular shape with mating end faces). At best, the degree of flexibility of Kaisin's end faces appears unclear and undefined based on Kaisin's disclosure, and Petitioner's attempts to read in a degree of flexibility necessary to allow the end faces to be folded into a tubular configuration lack adequate support. *See* Pet. 48–50.

Based on the foregoing we find that Petitioner fails to prove by a preponderance of the evidence that Kaisin discloses (1) “supports” that are “foldable into a tubular configuration” as required by claim 1; and (2) fasteners capable of securing the supports in a tubular configuration, as further required by claim 1, due to the lack of substrates that are foldable in that configuration. Further, even if Kaisin's end faces are foldable into a tubular configuration, Petitioner fails to establish that one of ordinary skill in the art would have been motivated to fold Kaisin's end faces into a tubular configuration and therefore Petitioner's proposed modification of Kaisin fails to disclose a fastener capable of holding the end faces in that tubular configuration.

3. Conclusion

We find that Petitioner's proposed modifications to and combination of Kaisin I, Kaisin II, Kaisin III, Arens, and Velcro do not disclose all of the limitations of independent claim 1. We find that we need not reach Patent Owner's alleged objective indicia of nonobviousness arguments because even if Patent Owner submitted no such evidence or failed to establish a nexus or any persuasive objective indicia evidence, our conclusion as to the obviousness of claim 1 would not change.

Based on the foregoing, we are not persuaded that Petitioner proved by a preponderance of the evidence that claim 1 of the '366 patent is unpatentable as obvious based on the combination of Kaisin I, Kaisin II, Kaisin III, Arens, and Velcro.

The remaining claims subject to this challenge all ultimately depend from claim 1. Petitioner's challenges to these dependent claims do not remedy the deficiencies in its challenge to claim 1. *See* Pet. 52–57. Accordingly, for the same reasons we address in the context of claim 1, we are not persuaded that Petitioner proved by a preponderance of the evidence that any of dependent claims 2, 3, 5–11, 13, 16, 18, 20–25, and 27 of the '366 patent is unpatentable as obvious based on the combination of Kaisin I, Kaisin II, Kaisin III, Arens, and Velcro.

F. The Okuno-based Challenges

Petitioner asserts that claims 1–3, 5–11, 13, 16, 18, 20–25, and 27 would have been obvious over the combination of Okuno, Arens, and Velcro. *See* Pet. 57–68. Patent Owner raises several counterarguments. *See* PO Resp. 56–64. We first provide an overview of the prior art, and then address the arguments and evidence.

1. Overview of Okuno

Okuno generally discloses a collapsible shade that encloses a light source, with the shade's surface “made into a honeycomb shape.” *See* Ex. 1011, 1:20–22. We reproduce Okuno's Figures 1 and 2 below, which shows the collapsible shade.

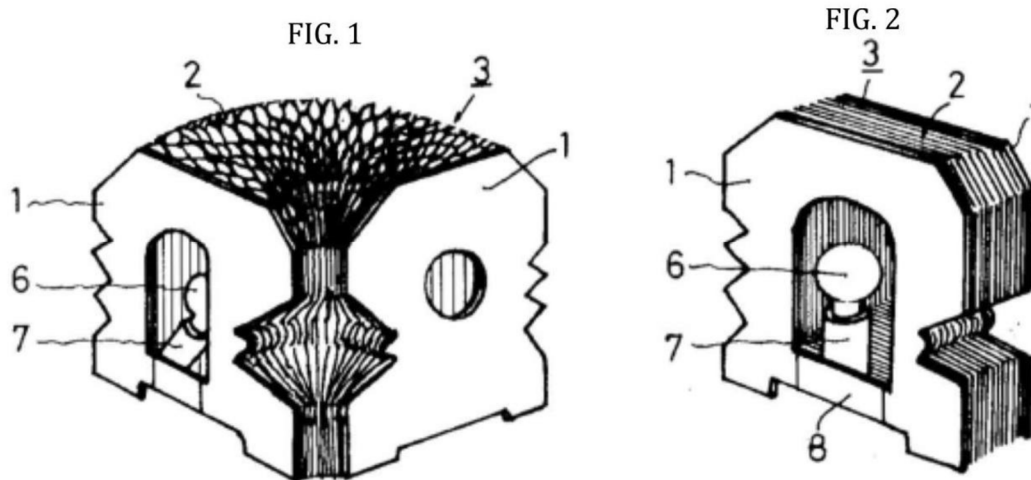


Figure 1 shows a perspective view of Okuno's shade in "a halfway-opened state" and Figure 2 shows the lampshade in "a folded state." Ex. 1011, 5:8–9. Figures 1 and 2 show main body 3, "expandable layer 2 that can be deployed in a honeycomb shape," and ends made of substrates 1 cut out of a plate body such as cardboard, hard synthetic resin, an aluminum plate, or plywood. *Id.* at 1:11–13, 2:11–15. Figures 1 and 2 also show illuminator 6 at the distal end of arm 7 within main body 3. *Id.* at 1:10–11. Use of arm 7 prevents direct contact between illuminator 6 and main body 3. *Id.* at 3:17–19. Installation plate 8 holds arm 7 at an inclined angle, keeping illuminator 6 away from substrate 1 or expandable layer 2. *Id.* at 4:3–23.

2. Discussion

The parties' arguments and evidence, and our analysis, generally track the arguments, evidence, and analysis provided above in the context of the SoftHousing-based and Kaisin-based challenges.

Petitioner argues that a "POSITA would have understood that supports made of cardboard or thin aluminum sheets can be flexible enough to be folded into various configurations if desired, including the tubular configuration recited in claim 1 of the '366 patent." Pet. 61–62 (citing

Ex. 1003 ¶¶ 91–94, 178–81); *see also* Pet. Reply 31–32. Just as it did in previous challenges, Petitioner argues that a “POSITA would have been motivated to fold the supports into a tubular configuration for functional reasons, such as when additional stability was desired, and/or for aesthetic reasons, such as when curved or rounded ends fit better with other elements of the environment in which the partition was being used.” *Id.* at 62 (citing Ex. 1003 ¶¶ 91–94, 178–81). As to the fasteners limitation, Petitioner argues that “Okuno discloses using a fastener on the supports to secure the shade in a cylindrical shape” and that using a “plurality” of such fasteners would have been obvious. *Id.* at 62 (citing Ex. 1003 ¶¶ 182–84; Ex. 1011). Petitioner also argues that “it would have been obvious to modify the shade in Okuno to include a plurality of fasteners on each support when a POSITA wanted to fold the ends of the shade in a semicircular tubular configuration, as described above, or to connect multiple articles together, as disclosed in Arens.” *Id.* at 63 (citing Ex. 1003 ¶¶ 86–88, 182–184).

Patent Owner first argues that Petitioner’s argument that Okuno discloses foldable supports lacks support given that Okuno describes its substrates as formed from “cardboard, hard synthetic resin, an aluminum plate, or plywood.” PO Resp. 56–57 (citing Ex. 1011, 339, C2); *see also id.* at 60–63 (arguing lack of support for Petitioner’s argument that Okuno’s materials are foldable and that Okuno teaches away from foldable substrates). As part of that argument, Patent Owner argues that Okuno’s substrates are both rigid and flat so that they meet each other to form a circular shade or to mate with an abutting wall surface. PO Resp. 57–58 (citing Ex. 1011, 3, C3, Figs. 4, 5; Ex. 2010 ¶¶ 158, 194). Patent Owner also argues that Okuno’s substrates need a degree of stiffness to support

installation plate 8 that holds the light source in place. *Id.* at 58–59 (citing Ex. 1011, 2, col. 1, 3, col. 4, Figs. 6–7; Ex. 2010 ¶ 158; 2011, 104). Patent Owner further contends that the proposed modification of Okuno would render Okuno unsatisfactory for its intended purpose and incapable of supporting plate 8 and the weight of the light bulb. *Id.* at 59 (citing Ex. 2010 ¶ 158; Ex. 2011, 103–104). Patent Owner also relies on its previous argument that Petitioner fails to show any motivation to achieve the tubular configuration for functional or aesthetic reasons. *Id.* at 63 (citing same argument in context of SoftHousing challenges).

Based on our review of the record, we agree with Patent Owner that Petitioner fails to prove that Okuno’s substrates are “foldable into a tubular configuration.” As Patent Owner points out, the materials used to create Okuno’s substrates as well as their role in Okuno’s shade both suggest a degree of stiffness rather than maintaining sufficient flexibility to be capable of being folded into a tubular configuration. *See* PO Resp. 56–57 (citing Ex. 1011, 339, C2); 60–63. First, Okuno discloses cardboard, hard synthetic resin, an aluminum plate, or plywood as the materials used in its substrates. Ex. 1011, 2:11–15. Petitioner argues that materials such as “thin aluminum” akin to “aluminum foil” are flexible enough to be folded, but Okuno does not describe its substrates as made of “thin” aluminum or aluminum foil and Petitioner fails to cite to Okuno when making these arguments. *See* Reply 31 (citing Ex. 1003 ¶ 180). Taken together, Okuno’s substrate materials, which include plywood, suggest substrates made from a relatively stiff material.

Second, Okuno uses these substrates to support an attachment plate 8, which in turn holds a light bulb 6, and to interface with the other substrate

when forming a cylindrical shade and to interface with a flat wall. *See id.* at 2:11–23, 3:1–4, 4:3–23, Figs. 4–7. All of these embodiments require some degree of stiffness (to support plate 8 and bulb 6) and resistance to folding to maintain a planar state (mating with an adjacent substrate or flat wall). *See id.* None of Okuno’s disclosures support Petitioner’s position that Okuno’s substrates are foldable into a tubular configuration, and we find Patent Owner’s arguments and declarant testimony, which more closely tracks with Okuno’s disclosure and goals, more credible than Petitioner’s arguments and declarant testimony. *See* PO Resp. 56–63; Ex. 2010 ¶ 158; Pet. 61–62; Ex. 1003 ¶¶ 91–94, 178–181. Because we find that Petitioner fails to establish that Okuno discloses supports flexible enough to be “foldable into a tubular configuration,” we also find that Petitioner fails to establish that adding fasteners to Okuno would result in fasteners capable of securing the supports in a tubular configuration.

Even if we assume that Okuno discloses supports that are foldable into a tubular configuration, we would still find Petitioner’s arguments lacking as to the fasteners limitation. First, Petitioner relies on the fasteners Okuno discloses to hold the shade in a cylindrical shape, but fails to argue or explain adequately how those fasteners are capable of securing the supports in a tubular configuration. *See* Pet. 62–63 (citing Ex. 1003 ¶¶ 86–88, 182–184). Second, for its argument based on Okuno’s fasteners and its argument that the Velcro in Arens and the Velcro reference provide suitable fastener examples, Petitioner assumes that a POSITA would have already “wanted” to fold Okuno’s supports into a tubular configuration. *See id.* at 63 (“when a POSITA wanted to fold the ends of the shade in a semicircular tubular configuration, as described above”). This argument, as discussed above in

the context of the other challenges, relies on Petitioner's motivation to fold Okuno's supports into a tubular configuration for functional and aesthetic reasons. *See id.* at 62 (citing Ex. 1003 ¶¶ 91–94, 178–81). Petitioner's motivation argument fares no better in the context of Okuno because forming Okuno's substrates into a tubular configuration would actually defeat Okuno's functionality as it relates to forming a cylindrical shade or attaching Okuno's planar substrate to a wall. *See* Ex. 1011, Figs. 4–5. Petitioner and its declarant again fail to explain adequately how forming Okuno's substrate into a tubular configuration would improve the stability or aesthetics of Okuno's existing shade. *See* Pet. 62–63; Ex. 1003 ¶¶ 91–94, 178–84.

Based on the foregoing we find that Petitioner fails to prove by a preponderance of the evidence that Okuno discloses (1) supports that are “foldable into a tubular configuration” as required by claim 1; and (2) fasteners capable of securing the supports in a tubular configuration, as further required by claim 1, due to the lack of substrates that are foldable in that configuration. Further, even if Okuno's substrates are foldable into a tubular configuration, Petitioner fails to establish that one of ordinary skill in the art would have been motivated to fold Okuno's supports into a tubular configuration and therefore Petitioner's proposed modification of Okuno fails to disclose a fastener capable of holding the supports in that tubular configuration.

3. Conclusion

We find that Petitioner's proposed modifications to and combination of Okuno, Arens, and Velcro do not disclose all of the limitations of independent claim 1. We find that we need not reach Patent Owner's

alleged objective indicia of nonobviousness arguments because even if Patent Owner submitted no such evidence or failed to establish a nexus or any persuasive objective indicia evidence, our conclusion as to the obviousness of claim 1 would not change.

Based on the foregoing, we are not persuaded that Petitioner proved by a preponderance of the evidence that claim 1 of the '366 patent is unpatentable as obvious based on the combination of Okuno, Arens, and Velcro.

The remaining claims subject to this challenge all ultimately depend from claim 1. Petitioner's challenges to these dependent claims do not remedy the deficiencies in its challenge to claim 1. *See* Pet. 64–68. Accordingly, for the same reasons we address in the context of claim 1, we are not persuaded that Petitioner proved by a preponderance of the evidence that any of dependent claims 2, 3, 5–11, 13, 16, 18, 20–25, and 27 of the '366 patent is unpatentable as obvious based on the combination of Okuno, Arens, and Velcro.

III. CONCLUSION

In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–3, 5–11, 13, 16, 18, 20–25, 27	103	SoftHousing I, SoftHousing II, SoftHousing III, <i>Arens, and/or Velcro</i>		1–3, 5–11, 13, 16, 18, 20–25, 27
1–3, 5–11, 13, 16, 18, 20–25, 27	103	Kaisin I, Kaisin II, Kaisin III, Arens, <i>and/or Velcro</i>		1–3, 5–11, 13, 16, 18, 20–25, 27

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–3, 5–11, 13, 16, 18, 20–25, 27	103	Okuno, Arens, and/or Velcro		1–3, 5–11, 13, 16, 18, 20–25, 27
Overall Outcome				1–3, 5–11, 13, 16, 18, 20–25, 27

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that no challenged claims of the '366 patent are determined to be unpatentable; and

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

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