

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALBANY INTERNATIONAL CORP.,
Petitioner,

v.

VOITH PATENT GMBH,
Patent Owner.

Case IPR2025-01116
Patent 11,261,566

**PETITIONER'S REPLY TO
PATENT OWNER'S RESPONSE**

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LIST OF EXHIBITS

EX1001	U.S. Patent No. 11,261,566
EX1002	U.S. Patent No. 11,261,566 File History
EX1003	Declaration of Dr. Christopher M. Pastore
EX1004	PCT Publication No. WO 89/12717 (“Sudre”)
EX1005	PCT Publication No. WO 2014/172594 (“Lee”)
EX1006	U.S. Patent No. 4,806,208 (“Penven”)
EX1007	U.S. Publication No. 2006/0162312 (“Patel”)
EX1008	PCT Publication No. WO 2009/039633 (“Swaine”)
EX1009	U.S. Patent No. 6,712,100 (“Yook”)
EX1010	U.S. Patent No. 5,887,630 (“Shipley”)
EX1011	U.S. Patent No. 5,167,262 (“Bennett”)
EX1012	U.S. Patent No. 5,937,914 (“Wilson”)
EX1013	U.S. Publication No. 2015/0096704 (“Straub”)
EX1014	U.S. Patent No. 6,531,418 (“Lidar”)
EX1015	U.S. Publication No. 2012/0031554 (“Eagles”)
EX1016	U.S. Patent No. 9,404,218 (“Xu”)
EX1017	U.S. Patent No. 4,026,331 (“Lees”)
EX1018	U.S. Patent No. 4,759,975 (“Sutherland”)
EX1019	U.S. Patent No. 4,357,386 (“Luciano”)
EX1020	U.S. Publication No. 2014/0186579 (“Botelho”)
EX1021	Sabit Adanur, Paper Machine Clothing (2d ed. 2017) (“Adanur”)

- EX1022 Sabit Adanur, From the Faculty: Formed, pressed & dried, Auburn Engineer (May 18, 2018),
<https://ecm.eng.auburn.edu/wp/emag/?p=5167>
- EX1023 Reserved
- EX1024 U.S. Patent No. 4,251,588 (“Goetemann”)
- EX1025 Sabit Adanur, Paper Machine Clothing (1st ed. 1997) (“Adanur-1997”)
- EX1026 Babaarslan, O., Hacioğullari, S.Ö. Effect of fibre cross-sectional shape on the properties of POY continuous filaments yarns. *Fibers Polym* 14, 146–151 (2013).
- EX1027 Björn Rydin, A new generation of seamed felt, Swedish paper magazine: Nordic cellulose (1992)
- EX1028 Translated Version of Björn Rydin, A new generation of seamed felt, Swedish paper magazine: Nordic cellulose (1992) (“Rydin”)
- EX1029 Teknisk Information Fran Albany Nordiskafilt, SEAMTECH, Pressfiltar med söm (1996).
- EX1030 Declaration of June Ann Munford (Adanur)
- EX1031 Declaration of June Ann Munford (Rydin)
- EX1032-1049 RESERVED
- EX1050 U.S. Publication No. 2004/0154148 (“Nilsson”)
- EX1051 Schematic drawing
- EX1052 Transcript of the Deposition of Dr. David Brookstein
- EX1053 Second Declaration of Dr. Christopher M. Pastore
- EX1054 H. Gozde Senel Ayaz, et al., David Brookstein, Peter I. Lelkes, Textile-templated electrospun anisotropic scaffolds for regenerative cardiac tissue engineering. *Biomaterials* (2014)
- EX1055 USPTO: Design patent image quality

EX1056	Digital Image Analysis of Petrographic Thin Sections in Conservation Research, University of Delaware (2004)
EX1057	Reserved
EX1058	Reserved
EX1059	U.S. Publication No. 2007/0251660 (“Walkenhaus”)
EX1060	Second Declaration of June Ann Munford
EX1061	Additional excerpt from Sabit Adanur, Paper Machine Clothing (2d ed. 2017)
EX1062	U.S. Patent No. 5,023,132 (“Stanley”)
EX1063	Definition of “fiber” from The Fairchild Books Dictionary of Textiles, eighth edition, 2014

I. INTRODUCTION

None of Voith's arguments can overcome the Petition's showing that all of the claimed features of the '566 Patent were obvious in light of parameters well-known in the art. There is nothing inventive about the claimed ratios. Voith merely repackages dimensions long used in the art into mathematical relationships, without demonstrating that the claimed ratios are critical or yield any unexpected result. Effectively, the claimed ratios amount to nothing more than a reformulation of known parameters having no patentable significance. The Petition robustly establishes through multiple grounds that prior art renders obvious the claimed ratios. The Board should find all claims of the '566 Patent unpatentable.

II. GROUNDS 1A-1E RENDER OBVIOUS ALL CLAIMS

The Petition demonstrated how dimensions obtained from Adanur's photographs, implemented in a press fabric based on Sudre, render obvious the Challenged Claims. Petition, 15-42. Voith's arguments against Sudre-Adanur overlook the Petition's motivations for the combination, focus on irrelevant details from the images, and advance unreasonable objections to Dr. Pastore's measurement techniques and results.

A. Voith Ignores the Petition's Motivations to Combine

The Petition provided several independent reasons to integrate each of Adanur's thread diameter, density, and loop size into Sudre's fabric: improvements

in strength, water management, and paper quality. Petition, 18-25. Voith, ignoring these distinct motivations, incorrectly claims that “Petitioner’s motivation-to-combine theory rests on a *single, isolated phrase* from Sudre.” POR, 16 (emphasis added). Furthermore, Voith cannot credibly dispute them, as confirmed by its own expert, Dr. Brookstein. EX1052, 26:5-10 (“Q. What characteristics of the fabric impact how easy it is for the water to pass through? A. Weave density, the size of the yarns, among other [things]....”). Voith’s arguments should be rejected.

Moreover, Voith mischaracterizes the Petition’s reliance on Sudre. The Petition did not use Sudre’s “particular requirements” phrase as the sole motivation for the combination. POR, 16. It cited this phrase to demonstrate that Sudre’s teachings are generic. Petition, 18-19; EX1053, ¶¶6-8. Voith’s “hindsight” accusation (POR, 17) arises from its myopic focus on this single Sudre phrase and from its failure to consider the independent, evidence-based rationale for each parameter. Petition, 18-24. Because the combination of independently-motivated parameters—all derived from Adanur—naturally yields the claimed LD/MDYD ratio, the Petition proves that the ’566 Patent merely named a technical relationship long practiced in the art.

B. Adanur's Images Support Petitioner's Obviousness Theory

The Petition's use of photographs is proper and probative. The photos show actual prior art press felt fabrics. The construction of these fabrics makes clear the unpatentability of the Challenged Claims.

1. Whether Adanur's images depict the same fabric is irrelevant

The Petition demonstrated that parameters derived solely from Adanur's MD image—thread diameter (MDYD) and loop diameter (LD)—render obvious the claimed LD/MDYD ratio. Petition, 37-38. Thread density, derived solely from Adanur's CD image, satisfies the claimed loop density. *Id.*, 35-37. Importantly, the obviousness analysis for each of these parameters (MDYD, LD, thread density) is independent from the others. *Id.*, 18-24. Because the rationales for each parameter are independent, the obviousness case does not require that each parameter be extracted from the same fabric. Given this independence, Voith's objection that Adanur's MD and CD images “depict different fabrics” (POR, 20) is a red herring.

Dr. Pastore measured Adanur's LD solely from the MD image. EX1003, ¶¶68-69. Moreover, while he utilized MDYD measurements from the CD image for statistical robustness, diameters measured from the MD image (62.1 ± 3.0 pixels) agreed with diameters measured from the CD image (61.6 ± 2.8 pixels). *Id.*,

¶71. Using the CD image diameter measurements, Dr. Pastore calculated an LD/MDYD of 3.0, squarely within the claimed 2.7-3.6 range. EX1003, ¶135. The result is the same when the MD image measurements are used—a ratio (3.3) that still satisfies the claimed range. EX1053, ¶¶9-13. Whether the two images are of the same fabric is irrelevant.

To be sure, thread density was measured only from Adanur’s CD image. EX1003, ¶73; EX1053, ¶14. Yet whether these images depict the same fabric remains irrelevant, because the Petition demonstrated obviousness of thread density independently from obviousness of the parameters gleaned from Adanur’s MD image. Petition, 19-25.

Lastly, Voith overreaches in “confirm[ing]” the two images show different. POR, 20. Structural differences do not prove distinct fabrics. EX1053, ¶15. As Dr. Brookstein confirmed, a single fabric can display varying cross-sectional profiles depending on its components and the position of the cut. EX1052, 171:1-7 (confirming different region cross-sections of Lee’s fabric “will be different.”).

2. The relative scales of Adanur’s images is irrelevant

Voith’s complaint that Petitioner’s determination that the two Adanur photographs share a common scale is “unsupported” (POR, 21) presents another red herring that fails for multiple reasons.

First, the issue of scale is irrelevant. LD/MDYD can be derived entirely from the MD image, while thread density is derived entirely from the CD image. EX1053, ¶¶16-18. Because both are dimensionless parameters derivable from a single image, the relative scales of the two images do not matter. EX1052, 85:21-86:18.

Second, Voith's premise that there is no support for the images "shar[ing] a common scale" (POR, 21) is incorrect. As Dr. Pastore explained, the presence of a scale bar signals that the images are to scale. EX2012, 107:14-108:2; EX1053, ¶19. This shared scale is corroborated by the consistent MDYD across the images. EX1003, ¶¶70-73; EX1053, ¶20. And while the fabrics appear to have different heights in the two images, Dr. Brookstein confirms that a single fabric can have varying cross-sectional profiles. EX1052, 171:1-7; EX1053, ¶21.

A POSITA would use Adanur's photos to determine the physical structure of the fabrics.

3. Adanur's MD and CD images are structurally relevant

Voith's attacks on the structures depicted in Adanur's images (POR, 22-23) fail.

First, Voith argues the CD image is irrelevant because it lacks a "seam structure." POR, 22. But the claims do not require that the MDYD be measured at

the seam region. Because Adanur's CD image is of a "press fabric," the measurements are pertinent. EX1021, 13. Similarly, the claimed "loop density" is defined based on the "MD thread density" (EX1001, 6:12-25), which can be measured at the seam region or elsewhere.

Second, Voith's argument that the MD image "lacks the structural features of a seam loop, e.g., paired MD yarns" (POR, 22) is wrong. The seam loop is plainly visible. Cutting a cross-section of a fabric can easily misalign a paired yarn. EX1053, ¶22. More importantly, Voith's assumption that all seams require aligned pairs of MD yarns is demonstrably incorrect: spiral woven press fabrics, for instance, do not possess paired, aligned MD yarns. EX1061, 12; EX1053, ¶23.

C. Dr. Pastore's Measurement Techniques Are Reliable

Dr. Pastore's measurements are reliable and Voith's attempts to discredit Adanur's images (POR, 19-24) fail. Voith fails to identify any factual or legal flaw in Dr. Pastore's measurement techniques or conclusions. Indeed, the Board has used photographs to determine the relative proportions of items. *See Valve Corp. v. Ironburg Inventions Ltd.*, No. IPR2017-01928, 2023 WL 698863, at *15 (P.T.A.B. Jan. 26, 2023).

1. Dr. Pastore's measurement technique is consistent with conventional quantitative reliance on images

Dr. Pastore's measurements of Adanur's images followed conventional pixel-based measurement techniques.¹ EX1056, 2; EX1053, ¶31. Voith's complaint that Dr. Pastore failed to describe his methodology (POR, 23-24) ignores that his techniques were standard (and thus not in need of detailed discussion) and that his declaration provided a detailed description. EX1003, ¶¶67-73; EX1053, ¶¶28-31.

Indeed, Voith's attacks on Dr. Pastore's pixel-counting technique as unsupported (POR, 23) are contradicted by Dr. Brookstein's reliance on this same technique, despite asserting at deposition that he does not use digital images for quantitative measurements. EX1052, 248:21-249:3 ("Q. Are you aware of anyone ever using a digital microscopy image to determine scale? ... A. It's not something that I do."); EX1054, 4 (An article naming Dr. Brookstein as an author, describing measurements in which "[t]he ultrastructure of the textile-templated fibrous scaffolds was further analyzed by SEM, assessing fiber size" and yielding "average fiber diameters" with 0.1nm resolution).

¹ Dr. Brookstein confirmed that Adanur's images are digital microscopy or SEM images. EX1052, 118:6-11.

Moreover, Voith's claim that Adanur's images are "uncalibrated" (POR, 23) is belied by the presence of a scale bar—the epitome of calibration. EX1053, ¶19.

2. Adanur's images are not digitally distorted

Voith improperly dismisses Adanur's images as having "distortion" that renders them "unsuitable for dimensional analysis." POR, 24. What Voith attempts to label as photographic "distortion" is simply the physical fabric. EX1053, ¶¶24-27. Standard post-processing, *e.g.*, calendering, can naturally compress threads, *e.g.*, from circles to ellipses. EX1052, 59:18-21 ("Q. You'd agree that the deformation [due to calendering] can change the cross-sectional shape of the MD threads? A. Yes."); EX1050, [0016], [0035]; EX1053, ¶¶25-26. Adanur's images do not suffer from digital distortion. They accurately depict threads that have been physically deformed—precisely what a POSITA would have expected in a "finished" press felt. EX1021, 13; EX1003, ¶69; EX1053, ¶26.

3. Alleged pixel count discrepancy does not impact the obviousness finding

Voith's complaints that "Dr. Pastore's pixel counts ... differ materially from an actual count of the source image pixels" (POR, 24) is a meaningless distraction (and, notably, is purely attorney argument unsupported by Dr. Brookstein). Thread density and LD/MDYD are dimensionless ratios that do not depend on absolute measurements, such as exact pixel counts. EX1052, 85:21-86:18; EX1053, ¶¶32-

33. And even specific dimensions, *e.g.*, as in claims 10 and 11, are determined based on a ratio to a scale bar conversion factor between pixels and millimeters, such that these, too, do not depend on absolute pixel counts. EX1053, ¶34.

To be sure, there is a discrepancy between Dr. Pastore’s initial Adanur pixel counts and pixel counts obtained from the EX1021 document available on P-TACTS. The Patent Office’s electronic filing system has downsampled the uploaded files. EX1055, 6. But Dr. Pastore moots this alleged problem by repeating his measurements directly on the P-TACTS exhibit and confirming that ratios calculated based on these uploaded files are consistent with his original conclusions. EX1053, ¶¶35-48. Moreover, Dr. Pastore’s updated measurements are in agreement with Voith’s own pixel counts, confirming both that Voith’s own pixel counts were obtained from the P-TACTS exhibit (what Voith deems the “source image” (POR, 24)) and—importantly—that this methodology is robust and repeatable. *Id.*

4. Dr. Pastore’s statistical analysis is robust

Dr. Pastore’s calculations are reliable. Voith’s accusation that his averaging of “measurements from different orientations” “violates basic statistical principles” (POR, 25) betrays a flawed understanding of geometry and statistics. Since a thread’s vertical and horizontal diameters are physically and geometrically related, Dr. Pastore’s collective averaging of them is statistically proper. EX1053, ¶¶49-

51; *see* EX1052, 62:23-63:6 (Dr. Brookstein conceding that the vertical and horizontal diameters are not independent).

Regardless, Voith's complaint is again just a distraction. Even calculating LD/MDYD using only the vertical or only the horizontal diameters, the resulting ratio (3.4 or 2.7, respectively) nevertheless falls within the claimed 2.7-3.6 range. EX1053, ¶52. Indeed, that Adanur meets the claimed range regardless of which average diameter is used highlights the robustness of Dr. Pastore's conclusions.

III. GROUNDS 2A-2E RENDER OBVIOUS ALL CLAIMS

The Petition demonstrated obviousness of the Challenged Claims based on implementing Sudre's press fabric with thread diameter and density from Lee and Penven's teachings of a typical loop diameter. Petition, 77-81. Voith's arguments against Sudre-Lee-Penven improperly narrow the scope of Lee's disclosure, mischaracterize the Petition's reliance on Lee and Penven, and disregard robust motivations supporting the combination.

A. Voith Ignores the Motivations for the Combination Advanced in the Petition

Voith's "hindsight" accusations (POR, 55) ignore the Petition's multiple, corroborated motivations underpinning Sudre-Lee-Penven.

1. Extensive prior art corroborates that the relied-upon parameter values were conventional

Voith ignores the Petition's corroboration that parameter values derived from Lee and Penven are conventional for woven press felts. POR, 37. Regarding thread diameter, the Petition cited Xu and Goetemann to corroborate that Lee's diameter range is conventional, a fact Dr. Brookstein confirmed. Petition, 80; EX1016, 6:59-64; EX1024, 2:1-2; EX1052, 112:3-114:8. Agreement between Adanur and Lee confirms Lee's thread density range is conventional. EX1016, 9:4-9; EX1059, [0166]; Petition, 80; EX1053, ¶55. And Penven itself characterizes its loop size as "typical." EX1006, 3:64-66; Petition, 76.

2. The Petition's motivations to combine are robust

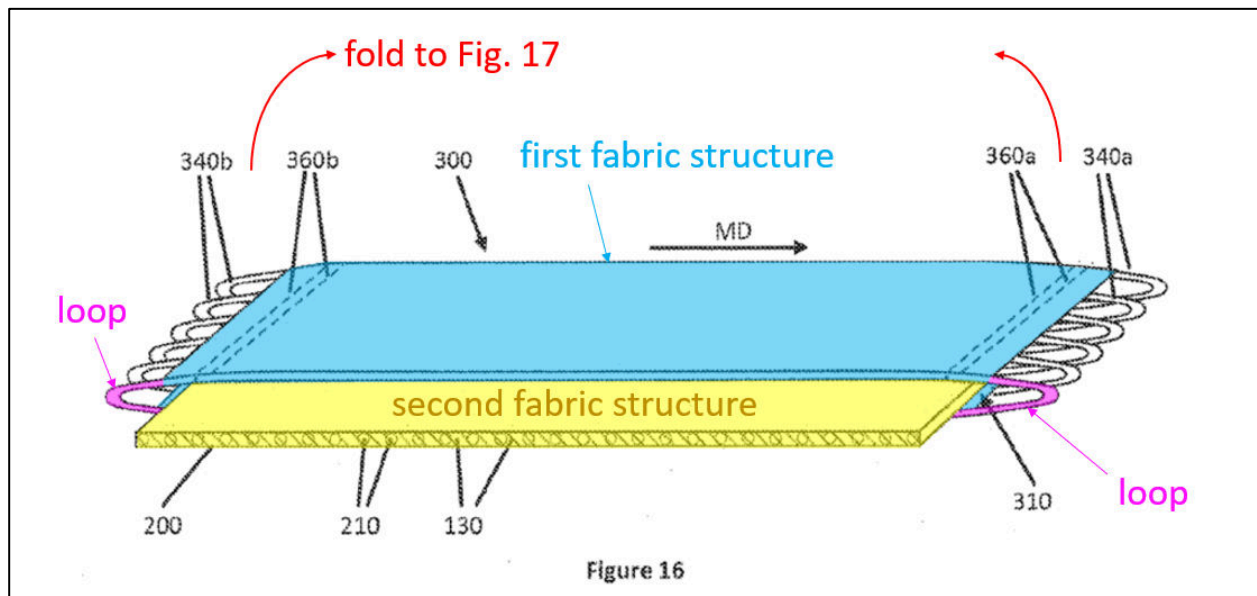
It is simply not true that "the most Petitioner can muster" (POR, 37) is that the parameters were conventional. Again, Voith ignores the Petition's detailed motivation-to-combine analysis. The Petition demonstrated—and Dr. Brookstein confirmed—that thread diameter and density contribute to mechanical and water management advantages. Petition, 79-81; EX1052, 26:19-27:5. And the Petition detailed seam strength and paper quality benefits that flow from using appropriately sized loops. Petition, 22-24, 80.

B. Voith Incorrectly Argues that Lee’s Fabric Architecture is Unsuitable to Sudre’s Application

1. Lee’s teachings are not limited to non-woven fabrics

Voith’s assertion that Lee’s relied-upon fabrics are limited to “*non-woven arrays*” (POR, 29, emphasis in original) and thus “cannot be applied to Sudre’s interwoven fabric” (POR, 32) is wrong. It ignores that Lee applies to both woven and non-woven fabrics.

Lee’s seamable first fabric structure (blue in Lee’s FIG. 16, *infra*) is formed into a “continuous tube 300” into which a “second fabric structure” (yellow) is inserted. Petition, 73-74; EX1005, 30-31. Voith’s attempt to discount the relevance of Lee’s first fabric because (Voith says) it is “not woven” (POR, 30) ignores that Lee itself states that “[i]t would of course be possible to use a woven structure to form continuous tube 300.” EX1005, 35 (emphasis added); see EX1052, 123:17-23 (Dr. Brookstein confirming that Lee’s continuous tube can be woven). Lee’s affirmative teaching that the first fabric structure can be woven forecloses Voith’s attempt to restrict Lee’s disclosure.



Lee, Fig. 16

With the scope of Lee's disclosure properly understood, Voith's argument collapses. Voith warns that transplanting parameters from a non-woven fabric into a woven one "would risk producing a fabric that cannot be woven or function as intended." POR, 32-33. But there is no risky "transplant" here: Lee's parameters are explicitly applicable to both woven and non-woven systems.

Even setting aside Lee's explicit confirmation of the applicability of its teachings to woven fabrics, Voith's assertion that Lee's parameter values "would therefore not ... be physically suitable" in Sudre's system (POR, 32) is also wrong. Voith ignores affirmative evidence confirming that Lee's disclosed thread diameters and density are consistent with known thread diameters (EX1016, 6:59-64, EX1024, 2:1-2) and densities (EX1016, 9:4-9, EX1059, [0166]) for woven

fabrics. EX1053, ¶¶53-55. And Dr. Brookstein confirms that Lee’s dimensions are usable in woven fabrics. EX1052, 145:1-3 (“Q: You’re not saying you couldn’t use a yarn of 0.3 to 0.6 in a woven fabric? A. Oh, no, you could use it”); *see* 153:19-154:5.

It is no surprise that Lee’s disclosed diameter and density ranges apply to both woven and non-woven fabrics, because Lee generally treats them as interchangeable. EX1005, 8 (“a seamed press felt is provided comprising a base fabric material, which can be *woven or non-woven*”), claim 10 (“the base fabric is one of an endless *woven*, modified endless *woven*, flat *woven*...or a *non-woven* construction”). Voith cannot create an incompatibility between two configurations—woven and non-woven—that Lee treats as substitutes.

2. Voith mischaracterizes the combination

Voith’s assertion that “[a] POSITA would not have been motivated to combine Sudre with Lee as they are references describing structurally different fabrics” (POR, 35) mischaracterizes the Sudre-Lee-Penven combination and ignores the Petition’s motivations for the combination. Petition, 79-81.

Voith explicitly reveals its mischaracterization, stating that the Petition’s combination “would *turn Sudre’s fabric’s [sic] to an [sic] nonwoven array* including a second fabric.” POR, 46 (emphasis added). This attacks a combination the Petition never advanced. The Petition does not “bodily

incorporate[]” Lee’s two-fabric architecture into Sudre. *See In re Keller*, 642 F.2d 413, 425 (C.C.P.A. 1981). It imports solely Lee’s thread dimensions and density. Petition, 77 (“the diameter of the MD (warp) threads and the warp thread density are based on Lee”).

Voith’s position that “[a] POSITA would not have been motivated to combine [Sudre and Lee]” (POR, 35) ignores the Petition’s multiple reasons why a POSITA would have been motivated to implement Lee’s thread diameter and density. Petition, 79-80. Voith offers no explanation for why these rationales would not apply, leaving them un rebutted. Importantly, none of the Petition’s motivations relies on the specifics of Lee’s two-fabric construction. In fact, Lee acknowledges that water management—a key motivator for thread density—is a universal press felt design criterion “[r]egardless of its construction.” EX1005, 3. Dr. Brookstein confirmed this understanding. EX1052, 26:19-27:5.

3. Lee does not teach away from use of woven fabrics

Voith’s assertion that “Lee [] affirmatively teaches away from Sudre-type flat-woven constructions” (POR, 35; *see* 61-63, citing EX1005, 2) is legally incorrect. Lee’s acknowledgement of manufacturing challenges, while potentially rendering flat-woven fabrics unpreferred in some circumstances, does not constitute a teaching away. *See Merck & Co. v. Biocraft Lab’ys, Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989). Factually, Lee endorses use of flat-woven fabrics.

EX1005, 19 (identifying endless woven, flat woven, multiaxial, or nonwoven fabrics as alternative options for Lee's base fabric), 35, 36 (describing the Fig. 24 embodiment that "is a woven fabric with a plain weave"), claim 10. Voith cannot credibly argue that Lee teaches away from an embodiment it expressly describes and claims.

C. Voith's Attack on the Prior Art's Teachings Fails to Rebut the Petition's Showing of Obviousness

1. Voith fails to rebut the Petition's showing of obviousness based on the overlap between the Sudre-Lee-Penven ranges and the claimed ranges

The Petition demonstrated that Lee's 0.3-0.6mm MD thread diameters, combined with the 1.27mm typical loop diameter taught by Penven, corresponds to an LD/MDYD ratio of 2.1-4.2. Petition, 85-87. The claimed 2.7-3.6 range falls within, and thus is rendered obvious by, this Sudre-Lee-Penven ratio. Voith mischaracterizes the Petition's overlapping range obviousness analysis as an improper "attempt to extrapolate the necessary ratio from some—but not all—of [the] yarn diameter/density ranges." POR, 46. But the Petition does not "extrapolate" anything. It applies the well-established legal framework for evaluating overlapping ranges.

Under that framework, prior art disclosure of a range that overlaps with a claimed range "creates a presumption of obviousness." *E.I. DuPont de Nemours &*

Co. v. Synvina C.V., 904 F.3d 996, 1006 (Fed. Cir. 2018); *see In re Geisler*, 116 F.3d 1465, 1469–70 (Fed. Cir. 1997); *In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003). “When the presumption applies, the burden of production falls upon the patentee to come forward with evidence of teaching away, unexpected results, or other pertinent evidence of nonobviousness, but the burden of persuasion on obviousness remains with the challenger.” *Janssen Pharms., Inc. v. Teva Pharms. USA, Inc.*, 141 F.4th 1367, 1375 (Fed. Cir. 2025) (internal citations removed). “If the presumption does not apply, a decisionmaker should apply “the normal full obviousness analysis.” *Id.* at 1378-1379.

Because the Petition showed the Sudre-Lee-Penven range encompasses the claimed LD/MDYD ratio—which Voith does not dispute—the presumption applies. Voith fails to meet its burden of production under the legal framework for overlapping ranges and therefore fails to overcome the presumption. It provides no experimental data, relying solely on uncorroborated speculation that the claimed ranges “produce[] unexpected results.” POR, 75. Likewise, the ’566 Patent contains no data—only conclusory assertions. EX1001, 3:1-3. Dr. Brookstein performed no experiments, nor did he evaluate any experimental data. EX1052, 11:19-12:15. Without any evidence of unexpected results, obviousness of the claimed ranges based on the Sudre-Lee-Penven overlapping range stands un rebutted. Institution Decision, 13.

Further, Voith's characterization of the Petition's obviousness as "self-serving guesswork" (POR, 46) betrays a fundamental misunderstanding of the law of overlapping ranges. Voith complains that combining Lee's 0.3-0.6mm diameter range with Penven's typical loop diameter yields some ratios that satisfy the claimed range and others that do not. POR, 46. But that is the very definition of an overlapping range. This overlap renders the claimed range obvious under proper legal framework, absent concrete evidence of criticality, unexpected results, or other objective indicia of nonobviousness—which Voith did not produce. The same is true for the obviousness of the claimed yarn density range in view of Lee's overlapping disclosure. Voith's failure to produce evidence therefore forms a basis for finding the claims unpatentable independent of the normal full obviousness analysis, which the Petition also provided. *Janssen*, 141 F.4th at 1375.

Relying on *In re Antonie* and *Sterlite*, Voith attempts to escape the prior art's overlapping ranges by asserting that LD/MDYD was not known to be a result-effective variable. POR, 47-50; *see E.I. DuPont*, 904 F.3d at 1006. Both *Antonie* and *Sterlite* are distinguishable.

Contrary to what Voith alleges, *Antonie* does not stand for the proposition that "[r]ecognition that individual component variables affect performance does not establish that their specific ratio is a recognized operative parameter." POR, 49. Rather, in *Antonie*, the court reversed the examiner's obviousness rejection

because the relied-on prior art addressed only one (contactor area) of the two variables (contactor area and tank volume) that governed the claimed ratio. *In re Antonie*, 559 F.2d 618, 619 (C.C.P.A. 1977). The prior art, the court found, was “silent regarding quantitative design parameters other than to give data on a single example...” *Id.* at 619. In reversing the rejection, the C.C.P.A. did not disturb the examiner’s finding that contactor area increased efficiency (and hence was a result-effective variable). *See id.* at 619-20. Instead, the C.C.P.A. explained that the prior art failed to identify that either the other variable—i.e., tank volume—or the ratio of the tank volume to the contactor area was a result-effective variable. *Id.* at 620. Unlike the prior art in *Antonie*, however, Sudre-Lee-Penven directly addresses both variables of the LD/MDYD ratio (i.e., provides specific values for LD, MDYD, and LD/MDYD), and specifies how they affect seam strength, permeability, ease of pintle insertion, and marking. Pet., 19-23.

Sterlite is similarly inapposite. There, the Board determined that Petitioner failed to offer adequate underlying support for the prior art range that, according to Petitioner, overlapped with the claimed range. *Sterlite Techs. Inc. v. Afl Telecommunications, LLC.*, No. IPR2025-00127, 2025 WL 1071441, at *7 (P.T.A.B. Apr. 9, 2025). The Board then found that general knowledge of friction effects impacting cable installation was insufficient to demonstrate that the claimed cross-sectional area was a result-effective variable. *Id.* at *7. *Sterlite* is

inapplicable because Voith does not dispute that the prior art in the Sudre-Lee-Penven combination teaches the overlapping range and, as discussed above, fails to rebut the resultant presumption of unpatentability. Moreover, unlike in *Sterlite*, the Petition here did not assert a generalized impact (such as cable installation in *Sterlite*) resulting from a parameter absent from the claims (such as friction in *Sterlite*). Instead, the Petition presented evidence that the specific variables recited in the claims (LD and MDYD) directly affect specific results in the resultant fabric (i.e., seam strength, permeability, ease of pintle insertion, and marking). Pet., 18-24.

2. Voith’s arguments that Lee does not disclose the thread diameters or loop density improperly ignore Lee’s explicit teachings

The Petition alternatively demonstrated that specific example MD thread diameter and density values disclosed by Lee, again coupled with Penven’s 1.27mm typical loop diameter, correspond to an LD/MDYD ratio and thread density that fall within (and thus render obvious) the claimed ranges. Petition, 82-87; EX1003, ¶¶288-306. Voith’s objections to the Petition’s reliance on these specific examples—e.g., that Lee’s disclosed 0.4mm thread diameter “concerns the MD thread in the second array structure, not the first array structure the Petitioner relies upon” (POR, 43; *see* 51 (advancing a similar objection against the relied-

upon thread density from Lee’s second array))—are contrary to Lee’s explicit disclosure confirming applicability of these values to both of Lee’s fabrics.

The Petition relied on Lee’s statement that its first and second fabric structures can have “equal” thread diameters and densities. EX1005, 29; Petition, 75. Voith demands that this disclosure be ignored because, it alleges, Lee elsewhere suggests that “the first diameter should be larger.” POR, 44. But it is legally inappropriate to ignore Lee’s explicit teachings of equality. *See In re Snow*, 471 F.2d 1400, 1403 (Ct. Cust. & Pat. App. 1973); Institution Decision, 13-14.

Furthermore, Lee itself contradicts Voith’s insistence that Lee “does not actually endorse of [sic] use of a same diameter.” POR, 45. The relied-upon 0.4mm thread diameter falls within the very range (0.3-0.6mm) Lee provides for its first fabric; the same is true for the relied-upon thread density. EX1005, 12; Petition, 75; EX1052, 113:16-18.

Moreover, Voith’s argument that “apply[ing] Adanur’s alleged conventional LD to the proposed 0.4mm MD relied upon from Lee, the ratio is 2.4” (POR, 38) is non-responsive to any ground presented in the Petition. Petitioner is not legally required to prove that *every* conceivable combination of conventional dimensions falls within the claimed ranges. It is sufficient that the Petition successfully demonstrated that *certain* combinations of known, conventional parameters render the claims obvious.

3. Voith's arguments against Penven are irrelevant and take Penven's disclosure out of context

The Petition relied on Penven's disclosure of the void diameter of "a *typical* seam." Petition, 86; EX1006, 3:64-66. Voith disregards how the Petition applied Penven, instead misguidedly focusing on Penven's "improved pintle system" (POR, 39) and the shape of its "composite passageway" of loops (POR, 42). These arguments are technically inaccurate, as discussed by Dr. Pastore. EX1053, ¶¶56-58. But more importantly, they are nothing more than distraction. The Petition relied on neither of these aspects of Penven, and Voith's attacks are, thus, irrelevant. Notably, Voith has no rebuttal to Penven's teaching of a "typical" 1.27mm void diameter.

4. Voith's attacks on Lee's purported pre-thermal treatment values are inconsistent with Lee and with the Sudre-Lee-Penven woven fabric

Voith's attempt to disqualify Lee's thread density as "pre-treatment attributes" rather than parameters of thermally treated "finished clothing" (POR, 53-54) reads a teaching into Lee that does not exist: Lee does not say whether its parameter values are pre- or post-treatment. EX1003, ¶293. Read as post-treatment values, they directly satisfy the claimed thread density range. But even if interpreted as pre-treatment values, Voith's criticism falls flat. While "Lee incorporates a thermoplastic adhesive" (POR, 54)—which Voith relies upon to

contest Lee's satisfaction of the claimed ranges—Sudre-Lee-Penven does not. The combination is a woven fabric (obviating the need for Lee's thermoplastic adhesive), with thread density based on Lee. Petition, 77. And the Petition established how a POSITA would have understood pre-treatment thread density values to correspond to the claimed finished thread densities. Petition, 83-85.

D. Expectation of Success Arguments in Sudre-Lee-Penven Ground are Robust

Voith's arguments that Petitioner failed to establish a reasonable expectation of success suffer from the same deficiencies that undermine its other arguments: it fails to address the actual combination advanced in the Petition. First, the combination does not require "converting Lee's nonwoven array architecture into the flat-woven structure of Sudre" (POR, 64), but rather incorporates teachings of Lee that are explicitly relevant to woven structures. Petition, 77; §III.B.1, *supra*. Second, the Petition did not "read a single line from Sudre" as motivating the combination (POR, 64), but instead provided multiple distinct motivations for each parameter. Petition, 79-80; §§III.A.1-2, *supra*. Third, it did not "selectively extract just the right attributes from Lee[]" (POR, 64), but relied on expressly disclosed examples and ranges. Petition, 82-87; §§III.C.1-2, *supra*. Finally, it did not "treat Penven's 'typical seam' approximation as a design specification" (POR, 64), but instead relied on it as confirmation of conventional seam dimensions.

Petition, 80; §III.C.3, *supra*. Voith’s entire expectation of success defense relies on attacking arguments Petitioner never made and ignoring the overlapping range taught in the art.

IV. GROUNDS 3A-3E RENDERS OBVIOUS CLAIMS 1-9 & 12-15

The Sudre-Rydin grounds demonstrated that dimensions obtained from Rydin’s photographs, when implemented in Sudre’s press fabric, render obvious the Challenged Claims. Petition, 98-101. Voith’s attacks on this ground echo its failed objections to Sudre-Adanur.

A. Whether Rydin’s Parameter Values are Sourced from a Single Seam is Irrelevant

Voith’s objection to the Petition’s reliance on “different structures” (POR, 66) or “different seams” (POR, 67) in Rydin also fail for reasons similar to those discussed above. *See* §§II.B.2-2, *supra*. It ignores the distinct motivations to incorporate each of thread density, loop diameter, and thread diameter into the combination fabric. Petition, 100-101. Since each of these motivations stand on their own, whether the measurements are sourced from the same seam (or same fabric) is irrelevant. *See* §§II.B.2-2, *supra*.

B. Dr. Pastore’s Analysis is Robust

Voith’s attacks on Dr. Pastore’s methodology (POR, 67-68) fails for the same reasons detailed above for Sudre-Adanur. *See supra* §II.B1; EX1056, 2; EX1053, ¶59. Furthermore, Voith’s criticism of Dr. Pastore’s reliance on only “a

single” loop diameter (POR, 68) inappropriately demands more than what is disclosed by the ’566 Patent, which relies on a single loop photograph. EX1001, 9:34-36, FIG. 4. Voith cannot hold the prior art to a stricter standard of disclosure than its own patent. *See In re Epstein*, 32 F.3d 1559, 1568 (Fed. Cir. 1994).

C. Dr. Brookstein’s Measurements of Rydin’s Thread Diameters are Geometrically Nonsensical

Voith’s accusation that Dr. Pastore’s thread diameter measurements “do not represent true diameters” (POR, 69) relies on a made-up analysis that defies basic geometry. Voith’s demands that thread diameters be “aligned with the diameter lines” of the inscribed circle (POR, 70) make no sense. EX1053, ¶¶60-61. Dr. Pastore correctly measured thread diameter as the shortest distance between two opposing yarn edges—an approach endorsed by Dr. Brookstein at deposition. EX1052, 102:13-105:20; EX1053, ¶61. Moreover, Dr. Pastore’s subsequent measurements refute Dr. Brookstein’s contention that Voith’s alternative approach should yield *shorter* lines, not longer. EX1053, ¶¶62-64.

D. The Pixel Count of Rydin’s Images does not Impact the Obviousness of the Claimed Ranges

As with Sudre-Adanur, Voith’s manufactured “discrepancy” between Dr. Pastore’s pixel measurements and its own (POR, 71) fails for the reasons previously discussed. It ignores that because the relevant values are dimensionless ratios, the absolute pixel count does not matter, as demonstrated by Dr. Pastore’s

newly performed measurements (which, notably, confirm Voith’s pixel measurements from the uploaded “source” (POR, 70) documents). EX1052, 85:21-86:18; EX1053, ¶¶65-72.

V. LIDAR RENDERS CLAIM 14 OBVIOUS

The Petition established the obviousness of claim 14, in all three sets of grounds, based on the elastomeric reinforcing yarns of Lidar’s batt layer. Petition, 66-68. Voith’s argument that yarns are not fibers (POR, 27) relies on an artificially restrictive—and uncorroborated—definition. In the textile arts, a fiber is simply the “fundamental component that is used in the assembly of textile yarns and fabrics.” EX1063, 3; EX1053, ¶¶73-74. A yarn (*e.g.*, Lidar’s elastomeric reinforcing yarns) is merely a structural arrangement of one or more fibers. EX1061, 9-11; EX1062, 2:2-9; EX1053, ¶¶73-74. Voith’s attempt to impose a false dichotomy between fibers and yarns collapses.

VI. SECONDARY CONSIDERATIONS

Voith’s arguments for non-obviousness because of “secondary considerations” (POR, 73) are speculative and contradicted by its own expert. Voith presents no data to support its allegation that “seam performance is controlled by the ratio LD/MDYD, rather than by absolute dimensions.” POR, 76. And Voith’s assertion that “[t]he claimed range yields a non-predictable balance” of various objectives is defeated by Dr. Brookstein’s admission that thread density

and diameter impact permeability (EX1052, 26:19-27:5) and loop size impacts ease of pintle insertion (*id.*, 41:12-42:1). *See id.*, 93:18-94:13 (agreeing that “you’re trying to optimize those two competing variables” of permeability and ease of pintle insertion).

VII. DR. PASTORE IS A POSITA

Voith’s accusations that Dr. Pastore fails to qualify as a POSITA (POR, 14-15) is factually and legally insufficient. First, Voith’s criticism of Dr. Pastore’s purported “lack of real-life exposure to such [papermaking] machines” (POR, 35) falls flat in the face of the experience of Dr. Brookstein, who admitted to never having seen a seamed press felt in person:

Q. At the time you were working on press felts, did those fabrics include seams?

A. No.

Q. Have you seen seams on press felt since then?

A. No. In person. I've seen pictures of it but not in person.

EX1052, 35:16-22; *see also* 39:11-16. Second, Voith’s belief that a lack of “hands-on experience” disqualifies Dr. Pastore as a POSITA does not account for textile engineering having provided Dr. Pastore with ample background knowledge and understanding of design of press felts. EX1053, ¶75. Third, it is not true that “work experience is required” to qualify as a POSITA. POR, 14. *See Env’t*

Designs, Ltd. v. Union Oil Co. of California, 713 F.2d 693, 696–97 (Fed. Cir. 1983) (“[f]actors that ***may be considered*** in determining level of ordinary skill in the art” (emphasis added)).

VIII. ADANUR AND RYDIN ARE PRINTED PUBLICATIONS.

Contrary to Voith’s contentions, the Petition did not incorporate by reference Ms. Munford’s testimony but, instead, cited it to demonstrate Adanur and Rydin were publicly available. POR 78-79; Pet. 3 (citing EX1030, ¶¶ 9-11; EX1031, ¶¶6-9); *see Liberty Energy Servs. LLC v. U.S. Well Servs., LLC*, IPR2025-00139, Pap. 14, at 30 (PTAB June 11, 2025).

The record evidence confirms that Petitioner demonstrated that Adanur and Rydin are printed publications. POR 79-81. Adanur and Rydin list a copyright of 2017 and a publication of 1992, respectively. EX1021, 3; EX1028, 2. Machine Readable Catalog (MARC) records, which “accurately indicate[] the date of an item’s public availability” from public catalogs, for Adanur (shortly after 12/8/2017) and Rydin (shortly after 9/1992) suffice to show public accessibility. EX1030 ¶¶5, 10-11; EX1031 ¶¶7, 9; *see VidStream LLC v. Twitter, Inc.*, 981 F.3d 1060, 1065 (Fed. Cir. 2020); *Dish Network LLC v. Entropic Commc’ns, LLC*, IPR2024-00373, Pap. 48, at 29-31 (PTAB Nov. 14, 2025). Notwithstanding the sufficiency of this evidence and the absence of any rebuttal evidence from Voith, Ms. Munford further confirms that library users use MARC records to locate

references in public library catalogs. EX1060, ¶¶5-8. *VidStream*, 981 F.3d at 1065-67.

IX. CONCLUSION

For the foregoing reasons, Petitioner respectfully requests that the Board find the Challenged Claims unpatentable.

Respectfully submitted,

Dated: 7/16/2026

/Grace J. Kim/
Grace Kim, Reg. No. 71,977
Michael Kane, Reg. No. 39,722
Kristi L. R. Sawert, Reg. No. 45,702
Gretchen DeVries, Reg. No. 72,505
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
T: 202-783-5070
F: 877-769-7945
Counsel for Petitioner

CERTIFICATION UNDER 37 C.F.R. § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petitioner Reply to Patent Owner Response totals 5,586 words, which is less than the 5,600 allowed under 37 CFR § 42.24(c)(1).

Respectfully submitted,

Dated: 7/16/2026

/Grace J. Kim/

Grace Kim, Reg. No. 71,977

Michael Kane, Reg. No. 39,722

Kristi L. R. Sawert, Reg. No. 45,702

Gretchen DeVries, Reg. No. 72,505

Fish & Richardson P.C.

60 South Sixth Street, Suite 3200

Minneapolis, MN 55402

T: 202-783-5070

F: 877-769-7945

Counsel for Petitioner

CERTIFICATE OF SERVICE

Pursuant to 37 CFR §42.6(e)(4), the undersigned certifies that on July 16, 2026, a complete and entire copy of this Petitioner's Reply to Patent Owner's Response were provided via email, to the Patent Owner by serving the email correspondence addresses of record as follows:

Theodoros Konstantakopoulos, Ph.D. Reg. No. 74,155
John Paul Padro (*pro hac vice*)
Goodwin Procter LLP
The New York Times Building
620 Eighth Avenue
New York, NY 10018-1405
Phone: (212) 459-7067
Fax: (212) 202-6268
TKonstantakopoulos@goodwinlaw.com
JPadro@goodwinlaw.com

/Crena Pacheco/

Crena Pacheco
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
Tel: 202-783-5070
Fax: 877-769-7945
pacheco@fr.com