

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOP GLORY TRADING GROUP INC. and
DP DREAM PAIRS INC.,

Petitioners,

v.

COLE HAAN LLC,
Patent Owner.

Case IPR2025-01393
Patent No. 10,443,163

PETITION FOR *INTER PARTES* REVIEW

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EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 10,443,163 (“163” or “163 patent”)
1002	File History of U.S. Patent No. 10,443,163 (“163FH”)
1003	Declaration of Dr. Sabit Adanur in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 10,443,163 (“Adanur”)
1004*	U.S. Patent Publication No. 2010/0154256 (“Dua”)
1005*	U.S. Patent No. 6,931,762 (“762” or “762 patent”)
1006*	U.S. Patent No. 6,910,288 (“288”)
1007*	Alan J. Flusser, <i>Clothes and the Man: The Principles of Fine Men’s Dress</i> (1985) (“Flusser”)
1008*	U.S. Patent No. 7,949,570 (“Litke”)
1009*	U.S. Patent Pub. No. 2014/0237856 (“Podhajny”)
1010*	U.S. Patent Pub. No. 2014/0109286 (“Blakely”)
1011	U.S. Patent No. 10,327,511 (“511” or “511 patent”)
1012	File History of U.S. Patent No. 10,327,511 (“511FH”)
1013	U.S. Patent No. 11,041,262 (“262” or “262 patent”)
1014	File History of U.S. Patent No. 11,041,262 (“262FH”)
1015*	U.S. Patent No. 8,028,440
1016*	U.S. Patent Pub. 2015/0313316
1017*	U.S. Patent Pub. 2013/0260104
1018*	Complaint for Patent Infringement in <i>Cole Haan LLC v. Top Glory Trading Group Inc. et al.</i> , 2:25-cv-00176 (D.N.J.)
1019*	<i>Man-Made Fiber and Textile Dictionary</i> , (4th ed. Issued 1978, Reprinted 1983)

Exhibit No.	Description
1020*	Wingate, <i>Fairchild's Dictionary of Textiles</i> (6th ed. 1979)
1021*	H. Stoll GmbH & Co, <i>Stoll Training: Manual Flat Knitting Machine</i> (2013)
1022*	American & Efird, <i>Footwear Glossary: Shoe Construction Terminology</i> , available at https://www.amefird.com/wp-content/uploads/2010/01/2Footwear-Glossary-Shoe-Construction-03-08-08.pdf (2008)
1023*	David J. Spencer, <i>Knitting Technology: A Comprehensive Handbook and Practical Guide</i> (3rd ed. 2001)
1024	Wonseok Choi, <i>Three Dimensional Seamless Garment Knitting on V-Bed Flat Knitting Machines</i> , 4 J. Textile and Apparel, Tech. and Mgmt., 1-33 (2005)
1025*	National Judicial Caseload Profile, 2024, overall and New Jersey
1026*	Hong et al., <i>The Development of 3D Shaped Knitted Fabrics For Technical Purposes on a Flat Knitting Machine</i> , 19 Indian Journal of Fibre & Textile Research, 189-94 (September 1994)
1027*	Lewis et al., <i>A Machine Knitter's Guide To Creating Fabrics</i> (1986)
1028*	<i>Complete Textile Glossary</i> (Celanese Acetate 2001)
1029*	U.S. Patent No. 1,803,554
1030*	U.S. Patent No. 1,841,518
1031*	U.S. Patent No. 2,675,631
1032*	U.S. Patent No. 5,345,638
1033*	U.S. Patent No. 2,440,393
1034*	U.S. Patent No. 2,147,197
1035*	U.S. Patent No. 2,400,692
1036	Reserved

Exhibit No.	Description
1037*	European Patent No. 1338690A1
1038*	A. W. Koester, <i>Fashion Terms: Apparel Fabric Glossary</i> (1992)
1039*	Sabit Adanur, <i>Wellington Sears Handbook of Industrial Textiles</i> (Johnston Industries Group 1995)
1040*	D. Ann Gioello, <i>Understanding Fabrics: From Fiber to Finished Cloth</i> (1982)
1041*	Cammy Sessa, “Clothes and the Man” by Flusser, <i>The Virginian-Pilot</i> , Sept. 7, 1995, at 37, available at: https://pilotonline.newsbank.com/signup?docref=doc/image/v2%253A146D908D09F2E7FE%2540NGPA-VAVP-1811A5D2D47F25A0%25402449968-18109F1A6F5E4F71%254036-18109F1A6F5E4F71%2540
1042*	Phyllis G. Tortora, <i>Understanding Textiles</i> 344 (4th ed. 1992)
1043*	Jess Power, <i>Functional to Fashionable: Knitwear's Evolution Throughout the Last Century and into the Millennium</i> , 5 J. Textile and Apparel, Tech. and Mgmt. 1-16 (2006)
1044*	<i>Advances in Knitting Technology</i> (K.F. Au ed. 2011)
1045*	William Morrow, <i>Best Sellers for Winter</i> , Publishers Weekly, Sept. 20, 1985, at 97
1046*	Alan J. Flusser, <i>Getting a Solid Footing</i> , <i>The New York Times Magazine</i> , Sept. 13, 1981, § 6, at 98, available at: https://www.nytimes.com/1981/09/13/magazine/getting-a-solid-footing.html
1047*	Alan Flusser, <i>Dressing the Man</i> , 188-208, HarperCollins, 2002
1048*	Michael Gross, <i>Dressing by the Books: Getting the Word to Men</i> , <i>The New York Times</i> , Oct. 19, 1985, § 1, at 52, available at: https://www.nytimes.com/1985/10/19/style/dressing-by-the-books-getting-the-word-to-men.html
1049*	Internet Archive Capture dated October 12, 1985, of “Clothes and The Man; The Principles of Fine Men’s Dress”, available at: https://web.archive.org/web/20150105224030/http://www.amazon.com:80/Clothes-Man-Principles-Fine-Dress/dp/0394546237
1050	Declaration of Jonathan Bradford

Exhibit No.	Description
1051*	<i>Spandex Technology</i> (1965)
1052*	Pointelle, <i>Merriam-Webster's Collegiate Dictionary</i> (10th ed. 2001)
1053*	Pointelle, <i>The Oxford American College Dictionary</i> (2002)
1054*	U.S. Patent No. D905,386
Petitioners have used the same exhibit number to refer to the same document across IPR2025-01392 and -01394, except for those exhibits designated by an *, which indicates that the exhibit is unique to each IPR proceeding.	

TABLE OF ABBREVIATIONS

Abbreviation	Description
'163 or '163 patent	U.S. Patent No. 10,443,163 (Ex.1001)
'163FH	File History of U.S. Patent No. 10,443,163 (Ex.1002)
Claims / Challenged Claims	Claims 1-28 of the '163 patent
'511 or '511 patent	U.S. Patent No. 10,327,511 (Ex.1009)
'511	File History of U.S. Patent No. 10,327,511 (“Ex.1010”)
IPR	<i>Inter Partes</i> Review
Petitioners	Petitioners Top Glory Trading Group Inc. and DP Dream Pairs Inc.
PO	Patent Owner
POSITA	Person of Ordinary Skill in the Art
PTAB	Patent Trial and Appeal Board
USPN	United States Patent No.
USPTO	United States Patent and Trademark Office

LIST OF CHALLENGED CLAIMS

[1.pre] A shoe comprising:

[1.a] a knit upper;

[1.b] a sole secured to the upper;

[1.c.i] the knit upper having a knitted element, the knitted element being formed of a unitary one-piece construction during a knitting process on a knitting machine,

[1.c.ii] the knitted element comprising a knitted upper heel region, a knitted upper lateral midfoot region, a knitted upper medial midfoot region, a knitted upper metatarsal region, a knitted upper lateral ball region, a knitted upper medial ball region, and a knitted upper toe region,

[1.c.iii] the knitted upper metatarsal region including a knitted upper lateral metatarsal region and a knitted upper medial metatarsal region, the upper having a knitted upper lateral side region and a knitted upper medial side region, the upper lateral side region including the upper lateral midfoot region, the upper lateral metatarsal region and the upper lateral ball region, the upper medial side region including the upper medial midfoot region, the upper medial metatarsal region and the upper medial ball region,

[1.c.iv] the upper toe region being seamlessly knitted with the upper medial and lateral ball regions during the knitting process, the upper medial and

lateral ball regions being seamlessly knitted with the knitted upper metatarsal region during the knitting process, the knitted upper metatarsal region being seamlessly knitted with the upper lateral and medial midfoot regions during the knitting process,

[1.c.v] the knitted element including a wingtip pattern, the wingtip pattern being portions of at least the upper toe region, the upper lateral and medial ball regions, and the upper lateral and medial metatarsal regions;

[1.c.vi] the knitted element comprising a first area of a first type of knit structure and a second area of a second type of knit structure, the second type of knit structure being different from the first type of knit structure, the first area having a rear boundary, the second area having a forward boundary, the rear boundary of the first area and the forward boundary of the second area being coincident and coextensive with each other and defining a boundary line between the first and second areas,

[1.c.vii] the wingtip pattern comprising the boundary line, the boundary line having a medial boundary line and a lateral boundary line, the medial boundary line comprising a wing-shaped curved line having a medial side portion extending forward from at least the upper medial metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the lateral boundary line comprising a wing-shaped curved line

having a lateral side portion extending forward from at least the upper lateral metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the rearwardly extending central portion of the medial boundary line converging toward the rearwardly extending central portion of the lateral boundary line.

[2] A shoe as set forth in claim 1 wherein the upper further comprises a throat, and wherein the apex points toward the throat.

[3] A shoe as set forth in claim 1 wherein the first type of knit structure is more tightly knit than the second type of knit structure.

[4] A shoe as set forth in claim 1 wherein the first type of knit structure is a jersey stitch knit and the second type of knit structure is a pointelle stitch knit.

[5] A shoe as set forth in claim 1 wherein the knitted element comprises covered spandex yarn and hot melt yarn, the hot melt yarn being knitted with the covered spandex yarn during the knitting process.

[6] A shoe as set forth in claim 5 wherein the hot melt yarns constitute at least 15% by mass of the knitted element.

[7] A shoe as set forth in claim 6 wherein the covered spandex yarn constitute at least 50% by mass of the knitted element.

[8] A shoe as set forth in claim 7 wherein the covered spandex yarn comprises polyester covered spandex yarn.

[9] A shoe as set forth in claim 8 wherein the knitted element further comprises stretch yarn, the stretch yarn constituting at least 5% by mass of the knitted element.

[10] A shoe as set forth in claim 5 wherein the covered spandex yarn has a linear density of between about 120 denier and about 180 denier, and wherein the hot melt yarn has a linear density of between about 80 denier and about 120 denier.

[11] A shoe as set forth in claim 1 wherein the knitted element comprises polyester yarn and hot melt yarn, the hot melt yarn being knitted with the polyester yarn during the knitting process.

[12] A shoe as set forth in claim 1 wherein the knitted element comprises hot melt yarn, the hot melt yarn constituting at least 15% by mass of the knitted element.

[13.pre] A shoe comprising:

[13.a] a knit upper;

[13.b] a sole secured to the upper;

[13.c.i] the knit upper having a knitted element, the knitted element being formed of a unitary one-piece construction during a knitting process on a knitting machine,

[13.c.ii] the knitted element comprising a knitted upper metatarsal region, a knitted upper lateral ball region, a knitted upper medial ball region, and a knitted upper toe region,

[13.c.iii] the knitted upper metatarsal region including a knitted upper lateral

metatarsal region and a knitted upper medial metatarsal region, the upper having a knitted upper lateral side region and a knitted upper medial side region, the upper lateral side region including the upper lateral metatarsal region and the upper lateral ball region, the upper medial side region including the upper medial metatarsal region and the upper medial ball region,

[13.c.iv] the upper toe region being seamlessly knitted with the upper medial and lateral ball regions during the knitting process, the upper medial and lateral ball regions being seamlessly knitted with the knitted upper metatarsal region during the knitting process,

[13.c.v] the knitted element including a wingtip pattern, the wingtip pattern being portions of at least the upper toe region, the upper lateral and medial ball regions, and the upper lateral and medial metatarsal regions;

[13.c.vi] the knitted element comprising a first area of a first type of knit structure and a second area of a second type of knit structure, the second type of knit structure being different from the first type of knit structure, the first area having a rear boundary, the second area having a forward boundary, the rear boundary of the first area and the forward boundary of the second area being coincident and coextensive with each other and defining a boundary line between the first and second areas,

[13.c.vii] the wingtip pattern comprising the boundary line, the boundary line

having a medial boundary line and a lateral boundary line, the medial boundary line comprising a wing-shaped curved line having a medial side portion extending forward from at least the upper medial metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the lateral boundary line comprising a wing-shaped curved line having a lateral side portion extending forward from at least the upper lateral metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the rearwardly extending central portion of the medial boundary line converging toward the rearwardly extending central portion of the lateral boundary line.

[14] A shoe as set forth in claim 13 wherein the wingtip pattern comprises a medial line of broguing and a lateral line of broguing, the upper toe region, the upper lateral and medial ball regions, and the upper lateral and medial metatarsal regions collectively being knitted with the medial and lateral lines of broguing, the medial line of broguing comprising a wing-shaped curved line of holes having a medial side broguing portion extending forward from at least the upper medial metatarsal region to the upper toe region and a central broguing portion extending rearward from the upper toe region, the lateral line of broguing comprising a wing-shaped curved line of holes having a lateral side broguing portion extending forward from at least the upper lateral metatarsal region to the upper toe region and a central broguing portion

extending rearward from the upper toe region, the rearwardly extending central broguing portion of the medial line of broguing converging toward the rearwardly extending central broguing portion of the lateral line of broguing.

[15] A shoe as set forth in claim 14 wherein the central broguing portions of the medial and lateral lines of broguing meet at a rearwardly pointing apex.

[16] A shoe as set forth in claim 13 wherein the first type of knit structure is a jersey stitch knit and the second type of knit structure is a pointelle stitch knit.

[17] A shoe as set forth in claim 13 wherein the first type of knit structure is more tightly knit than the second type of knit structure.

[18.pre] A method of manufacturing an upper for an article of footwear, the method comprising:

[18.a.i] knitting with a knitting machine to form a knitted element of the upper such that the knitted element is of a unitary one-piece construction comprising **[18.a.ii]** a knitted upper heel region, a knitted upper lateral midfoot region, a knitted upper medial midfoot region, a knitted upper metatarsal region, a knitted upper lateral ball region, a knitted upper medial ball region, and a knitted upper toe region,

[18.a.iii] the knitted upper metatarsal region including a knitted upper lateral metatarsal region and a knitted upper medial metatarsal region, the upper having a knitted upper lateral side region and a knitted upper medial side

region, the upper lateral side region including the upper lateral midfoot region, the upper lateral metatarsal region and the upper lateral ball region, the upper medial side region including the upper medial midfoot region, the upper medial metatarsal region and the upper medial ball region,

[18.a.iv] the upper toe region being seamlessly knitted with the upper medial and lateral ball regions during the knitting process, the upper medial and lateral ball regions being seamlessly knitted with the knitted upper metatarsal region during the knitting process, the knitted upper metatarsal region being seamlessly knitted with the upper lateral and medial midfoot regions during the knitting process,

[18.a.v] the knitted element including a wingtip pattern, the wingtip pattern being portions of at least the upper toe region, the upper lateral and medial ball regions, and the upper lateral and medial metatarsal regions

[18.a.vi] the knitted element comprising a first area of a first type of knit structure and a second area of a second type of knit structure, the second type of knit structure being different from the first type of knit structure, the first area having a rear boundary, the second area having a forward boundary, the rear boundary of the first area and the forward boundary of the second area being coincident and coextensive with each other and defining a boundary line between the first and second areas,

[18.a.vii] the wingtip pattern comprising the boundary line, the boundary line having a medial boundary line and a lateral boundary line, the medial boundary line comprising a wing-shaped curved line having a medial side portion extending forward from at least the upper medial metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the lateral boundary line comprising a wing-shaped curved line having a lateral side portion extending forward from at least the upper lateral metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the rearwardly extending central portion of the medial boundary line converging toward the rearwardly extending central portion of the lateral boundary line;

[18.b] the upper toe region being seamlessly knitted with the upper medial and lateral ball regions during the knitting step; the upper medial and lateral ball regions being seamlessly knitted with the knitted upper metatarsal region during the knitting step; the knitted upper metatarsal region being seamlessly knitted with the upper lateral and medial midfoot regions during the knitting step;

[18.c] the first and second areas and the wingtip pattern being seamlessly knitted during the knitting step.

[19] A method as set forth in claim 18 wherein the knitted element includes a line of

broguing adjacent the boundary line, the knitted element being knitted with the line of broguing during the knitting step.

[20] A method as set forth in claim 18 wherein the knitted element includes a medial line of broguing and a lateral line of broguing, the medial line of broguing being adjacent the medial boundary line, the lateral line of broguing being adjacent the lateral boundary line, the medial line of broguing comprising a curved line of holes, the lateral line of broguing comprising a curved line of holes, the knitted element being knitted with the medial and lateral lines of broguing during the knitting step.

[21.pre] A method of manufacturing an article of footwear having a knitted upper and a sole, the method comprising:

[21.a.i] knitting with a knitting machine to form a knitted element of the upper such that the knitted element is of a unitary one-piece construction comprising

[21.a.ii] a knitted upper heel region, a knitted upper lateral midfoot region, a knitted upper medial midfoot region, a knitted upper metatarsal region, a knitted upper lateral ball region, a knitted upper medial ball region, and a knitted upper toe region,

[21.a.iii] the knitted upper metatarsal region including an upper lateral metatarsal region and an upper medial metatarsal region, the knitted element having an upper lateral side region and an upper medial side region, the upper lateral side region including the upper lateral midfoot region, the upper lateral

metatarsal region and the upper lateral ball region, the upper medial side region including the upper medial midfoot region, the upper medial metatarsal region and the upper medial ball region,

[21.a.iv] the knitted element comprising a first area of a jersey stitch knit and a second area of a pointelle stitch knit, the first area being at least in the upper toe region, the second area being at least in the upper lateral and medial metatarsal regions, the first area having a rear boundary, the second area having a forward boundary, the rear boundary of the first area and the forward boundary of the second area being coincident and coextensive with each other and defining a boundary line between the first and second areas;

[21.a.v] attaching the sole to the upper;

[21.b] the upper toe region being seamlessly knitted with the upper medial and lateral ball regions during the knitting step; the upper medial and lateral ball regions being seamlessly knitted with the knitted upper metatarsal region during the knitting step; the knitted upper metatarsal region being seamlessly knitted with the upper lateral and medial midfoot regions during the knitting step;

[21.c] the first and second areas being knitted during the knitting step.

[22] A method as set forth in claim 21 wherein the knitted element includes a line of broguing adjacent the boundary line, the knitted element being knitted with the line

of broguing during the knitting step.

[23] A method as set forth in claim 21 wherein the boundary line comprises a medial boundary line and a lateral boundary line, and wherein the knitted element includes a medial line of broguing and a lateral line of broguing, the medial line of broguing being adjacent the medial boundary line, the lateral line of broguing being adjacent the lateral boundary line, the medial line of broguing comprising a curved line of holes, the lateral line of broguing comprising a curved line of holes.

[24] A method as set forth in claim 23 wherein the knitted element is knitted with the medial and lateral lines of broguing during the knitting step.

[25] A method as set forth in claim 24 wherein the upper is knitted during the knitting step with at least first and second yarns, the first yarn being of a hot melt yarn, the second yarn being of a yarn other than a hot melt yarn.

[26.pre] A method as set forth in claim 25 further comprising:

[26.a] placing the upper around a last;

[26.b] applying heat to the upper while the upper is around the last to cause the hot melt yarn to affix to the second yarn.

[27] A method as set forth in claim 21 wherein the knitted element further includes a knitted lateral eyestay area and a knitted medial eyestay area, the knitted upper lateral midfoot region including a knitted lateral midfoot area, the knitted upper medial midfoot region including a knitted medial midfoot area, and wherein

broguing holes forming lines of broguing are between the lateral midfoot area and the lateral eyestay area and between the medial midfoot area and the medial eyestay area, wherein the knitted element is knitted with the broguing holes during the knitting step.

[28] A method as set forth in claim 21 wherein the knitted upper lateral midfoot region includes a knitted lateral midfoot area and the knitted upper medial midfoot region includes a knitted medial midfoot area, and wherein broguing holes forming lines of broguing are between the lateral midfoot area and the second area and between the medial midfoot area and the second area, wherein the knitted element is knitted with the broguing holes during the knitting step.

Pursuant to §§311-319 and §42.1,¹ Top Glory Trading Group Inc. and DP Dream Pairs Inc. (“Petitioners”) petition for IPR of Claims 1-28 (“Claims”) of USPN 10,443,163 (Ex.1001, “’163”). There is a reasonable likelihood—and it is highly likely—that at least one claim is unpatentable. Petitioners request review of the Claims and judgment finding them unpatentable under §103.

I. INTRODUCTION

’163’s purported invention is directed to shoes having one-piece, seamless knit uppers that include areas with different knit structures (e.g., more/less tightly knit) and/or a wingtip pattern (e.g., at boundary between different knit structures). ’163, 1:27-2:25, cl. 18.

¹ Section cites are to 35 U.S.C. or 37 C.F.R. as context indicates. All emphasis/annotations added unless noted. Figure annotations herein generally quote the Claims for reference. Citations are exemplary and not meant to limit.

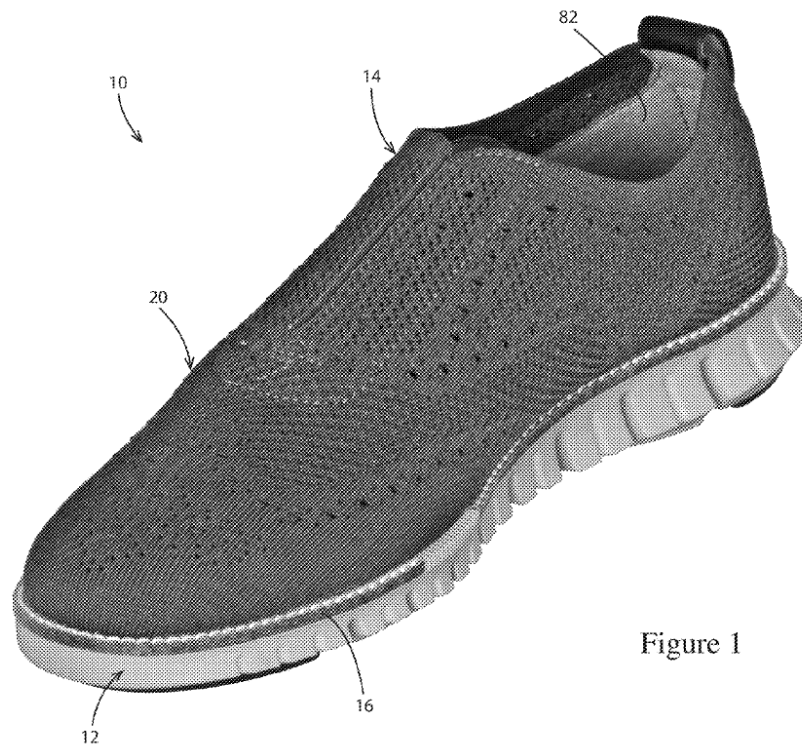


Figure 1

'163, Fig. 1.

During prosecution of '511—'163's parent—similar claims were allowed after Applicant argued the claimed seamlessly knit **wingtip pattern** ('511FH, 133-35) and **configuration** of two different knit structures ('511FH, 140-41) were not taught in the prior art. *See* §V.C.

But '163 does not purport to have identified any new techniques for seamless knitting, much less seamlessly knitting the claimed wingtip pattern or configuration of knit structures, or any advantageous structural or functional characteristics associated with these features.

As explained below, the wingtip pattern and/or configuration of different knit

structures are aesthetic features that should not be given patentable weight; remaining functional and structural limitations were well-known in the prior art. But even if those features receive patentable weight, techniques for seamlessly knitting shoe uppers with patterns and various configurations of different knit structures—and the wingtip pattern itself—were well-known prior to '163; it would have been an obvious design choice to apply the wingtip pattern and knit structure configurations using the prior art techniques for seamlessly knitting patterned shoe uppers. *Adanur* ¶¶44-78.

Accordingly, Petitioners request that the Board institute trial and find the Claims unpatentable.

II. MANDATORY NOTICES UNDER 37 C.F.R. §42.8

A. Real Party-in-Interest

Petitioners and Miracle Miles Group, Inc. are real parties-in-interest. No other party had access to or control over the Petition, and no other party funded or participated in preparation of the Petition.

B. Related Matters

The '163 is the subject of the following co-pending civil action:

Cole Haan LLC v. Top Glory Trading Group Inc. et al., 2:25-cv-00176
(D.N.J.) (“NJ Case”).

Petitioners have also filed petitions for IPR of the other asserted USPNs 10,327,511 (IPR2025-01392) and 11,041,262 (IPR2025-01394).

C. Lead and Back-Up Counsel

Lead Counsel	Backup Counsel
<p>James L. Davis, Jr. Reg. No. 57,325 ROPES & GRAY LLP 525 University Avenue, 8th Floor Palo Alto, CA 94301 Phone: +1-650-617-4000 Fax: +1-617-235-9492 james.l.davis@ropesgray.com</p> <p>TopGlory-ColeHaan-Ropes- IPR@ropesgray.com</p> <p>Mailing address for all PTAB correspondence: ROPES & GRAY LLP IPRM—Floor 43 Prudential Tower 800 Boylston Street Boston, Massachusetts 02199-3600</p>	<p>Matthew R Shapiro Reg. No. 70,945 ROPES & GRAY LLP 1211 Avenue of the Americas New York, NY 10036-8704 Phone: +1-212-596-9000 Fax: +1-212-596-9090 matthew.shapiro@ropesgray.com</p> <p>Matthew Rizzolo Reg. No. 57,565 Colin Dunn Reg. No. 76,316 ROPES & GRAY LLP 2099 Pennsylvania Avenue, NW Washington, D.C. US 20006-6807 Phone: +1-202-508-4600 Fax: +1-202-508-4650 matthew.rizzolo@ropesgray.com colin.dunn@ropesgray.com</p> <p>James Mack Reg. No. 74,196 Nancy Attalla Reg. No. 81,978 ROPES & GRAY LLP 525 University Avenue, 8th Floor Palo Alto, CA 94303-2284 Phone: 650-617-4000 Fax: 617-235-9492 James.mack@ropesgray.com nancy.attalla@ropesgray.com</p>

Petitioners consent to electronic service of documents to the email addresses

identified above.

III. PAYMENT OF FEES

The undersigned authorizes the Office to charge the fee required by §42.15(a) and any additional fees that might be due to Deposit Account No. 18-1945, under Order No. 119958-0002-651.

IV. REQUIREMENTS FOR *INTER PARTES* REVIEW

A. Grounds for Standing

Pursuant to §42.104(a), Petitioners certify '163 is available for IPR. Petitioners and any RPIs are not barred or estopped from requesting IPR challenging Claims on the grounds identified herein.

B. Identification of Challenge

Pursuant to §§42.104(b) and (b)(1), Petitioners request IPR of the Claims and that the Board cancel the same.

1. The Specific Art on Which the Challenge Is Based

Petitioners rely upon the following art (Adanur ¶¶89-91):

Name	Ex.	Publication	Filed	Published/ Issued	Prior art under at least
Dua	1004	U.S. Pub. 2010/0154256	12/18/2008	06/24/2010	§102(a)(1)
'762	1005	USPN 6,931,762	12/18/2002	08/23/2005	§102(a)(1)
'288	1006	USPN 6,910,288	12/18/2002	06/28/2005	§102(a)(1)
Flusser	1007	Flusser, <i>Clothes and the Man</i>	N/A	1985	§102(a)(1)

		(1985) ²			
Litke	1008	USPN 7,949,570	08/14/2009	05/24/2011	§102(a)(1)
Podhajny	1009	U.S. Pub. 2014/0237856	05/07/2014	08/28/2014	§102(a)(1)
Blakely	1010	U.S. Pub. 2014/0109286	12/20/2013	04/24/2014	§102(a)(1)

Each of the above references is prior art to the Claims based on the 07/08/2016 filing date of App. No. 15/205,672 in '163's priority claim.

2. Statutory Grounds on Which the Challenge Is Based

Ground	Claim(s)	Basis	Primary Reference	In view of
1	1-28	§103	Dua	N/A
2				'762/'288
3				Flusser
4				'762/'288, Flusser
5				Litke
6				'762/'288, Litke
7	5-9			Podhajny

² Published by Villard Books (Random House); available from libraries, Amazon, widely purchased/disseminated. Exs. 1007, 1041, 1045-1049. Author independently known as a source of fashion advice by interested members of the public. *Id.* Adanur ¶¶225-226.

8	5-9			'762/'288, Litke, Podhajny
9	10			Blakely
10	10			Litke, Blakely

V. '163

A. Overview

The purported invention of '163 relates to footwear/shoes, and a method of making the same, “comprising a knit upper” having “a knitted element” that “includes a wingtip pattern,” and a first and second area having different types of knit structures. '163, 1:27-31, 1:50-51, 2:17-20. The “knitted element 20 is formed of a unitary one-piece construction during a knitting process,” with adjacent regions being “seamlessly knitted.” '163, 1:27-50.

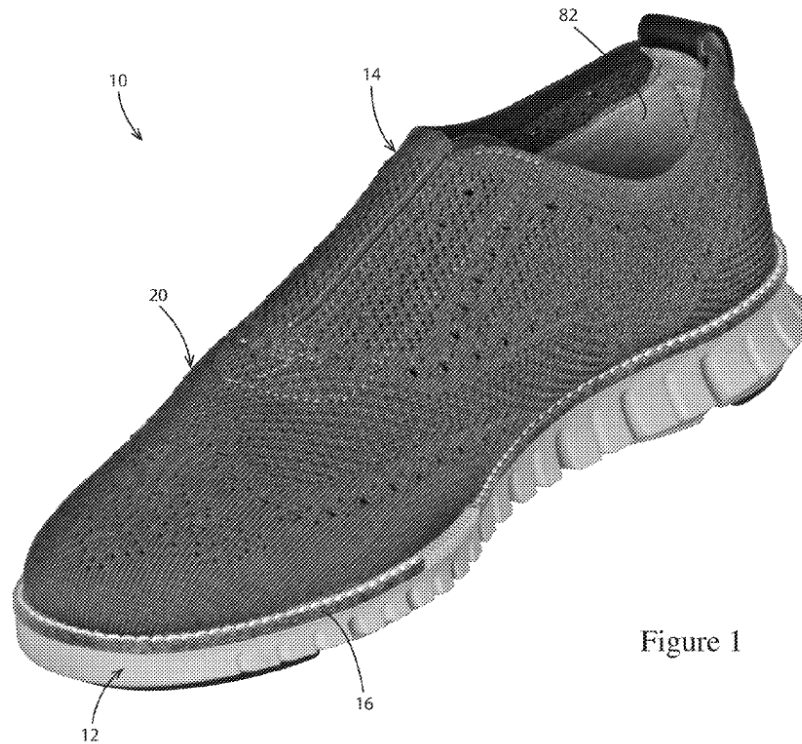
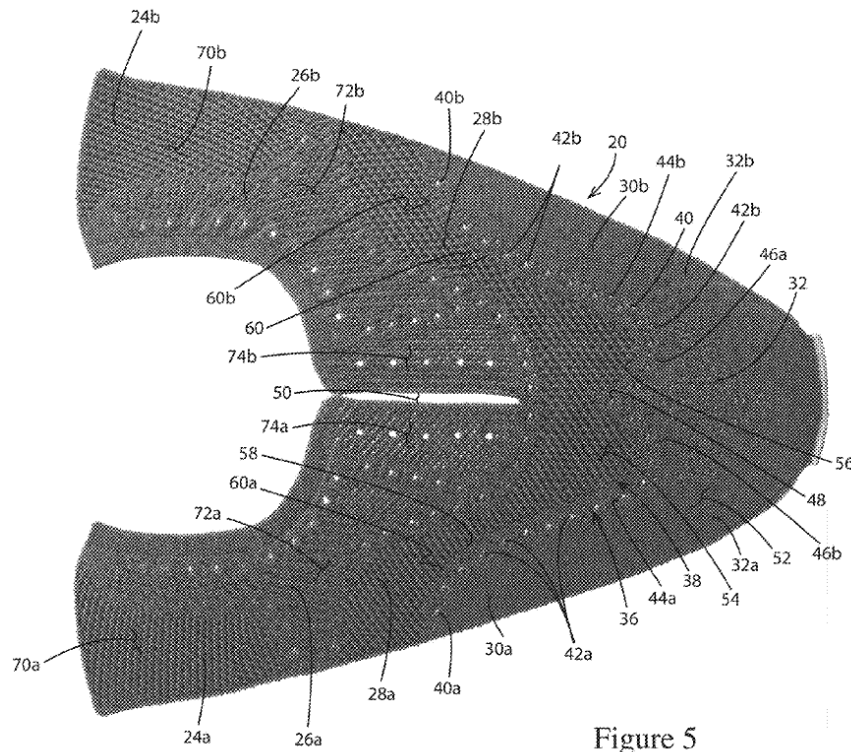


Figure 1

'163, Fig. 1.

The knitted element includes “first and second wingtip patterns 36, 38” in the toe region 32, lateral/medial ball regions 30a/b, and lateral/medial metatarsal regions 28a/b. '163, 4:21-27. The patterns include lateral/medial lines of broguing having “wing-shaped curved line[s] of holes” formed through the “knitting process.” '163, 4:38-62.



C. '511 Prosecution History

During '511's prosecution, pending claims were rejected as obvious over USPN 7,347,011 ("'011") or '011 and USPN 2,312,078 ("'078"). '511FH, 107-113. The rejection cited '011's teaching of a knitted shoe upper 30 having textures 46",47",48" created using "various stitches...for different areas" including, e.g., "broguing (perforations, 48")" and found it would have been obvious "to provide the broguing [in '011]" or use '078's wingtip design to optimize aesthetic appeal. *Id.*, 108-110. Examiner also asserted "jersey and pointelle" stitch knits would have been obvious because '011 disclosed various stitches for altering physical properties/aesthetics. *Id.*, 109-110.

In response, Applicant conceded '011 disclosed knitted patterns, but argued those patterns did not extend from through the claimed regions and did not disclose a **wingtip** pattern with broguing in "multiple regions of the shoe." *Id.*, 134. Applicant admitted '011 disclosed using different knit structures, but argued '011 failed to identify "jersey and pointelle stitches" arranged in the "claimed configuration." *Id.*, 139-40. As for '078, Applicant argued '078's teachings of a wingtip pattern/broguing were insufficient because '078's shoe was not **knitted**, and asserted a lack of motivation to combine because Applicant was the first to recognize the aesthetic appeal of knitted wingtip shoes. *Id.*, 135, 137. Applicant also argued the claims were not an aesthetic design because the claimed pattern "inherently has

mechanical function”—without explaining why. *Id.*, 138. A Notice of Allowance followed. *Id.*, 148-150; Adanur ¶¶77-79.

VI. §325(D) AND §314(A) DISCRETION IS INAPPLICABLE

A. §325(d)

Dua, Flusser, Litke, Podhajny, and Blakely were never identified in IDS or considered. Indeed, Examiner never issued a rejection on §§102/103 grounds during ’163’s prosecution. The primary reference, **Dua** (including ’762/’288 incorporated by reference, *see* §IX.A.1-4) is also not the same or substantially the same as ’011 cited during ’511’s prosecution at least because ’011 does not incorporate by reference ’762/’288 or disclose a knitted *dress shoe* upper.

Even if the art and arguments were substantially the same, Examiner erred in a manner material to patentability. It was error to allow the Claims because, *e.g.*, Examiner (1) improperly gave patentable weight to ornamental features including the claimed “wingtip pattern” and knit structure configuration (*see* §VIII.A) and (2) failed to reject the Claims over references teaching a shoe including a patterned, seamlessly knitted upper with varied knit structure configurations, which could vary in location for aesthetic purposes, and a wingtip-style shoe. *See* §IX.

B. §314(a)

The NJ Case does not warrant the exercise of §314(a) discretion as Petitioners

intend to seek a stay, no trial date has been set, and upon institution, Petitioners stipulate they will not pursue in the NJ Case the grounds of invalidity asserted in the IPR, or any other ground that was raised or could have reasonably been raised in the IPR with respect to the Claims. The Petition is strong and presents compelling unpatentability arguments overlooked during prosecution, *see* §§IX.A-E. '163 had not been asserted until PO filed the NJ Case in 2025. Additionally, the parties' presuit correspondence shows Petitioners had settled expectations PO did not intend to assert '163. Regardless, PO has not developed settled expectations—'163 issued in October 2019. Accordingly, the Board should not exercise discretion to deny institution. §314(a).

VII. LEVEL OF ORDINARY SKILL IN THE ART

On or before the '163's claimed priority date, a person of ordinary skill in the art ("POSITA") would have at least a bachelor's degree in textile-related sciences, engineering, or industrial product design, or the equivalent thereof, and two years of work experience in footwear design. Additional graduate education could substitute for professional experience, and significant academic/work experience could substitute for formal education. Adanur ¶¶80-82.

VIII. CLAIM CONSTRUCTION

IPR claim terms are construed according to *Phillips*. §42.100(b). While the references this petition is based on teach or suggest each claim limitation, Petitioners

assert certain claim limitations reciting ornamental/aesthetic features are not entitled to patentable weight. Alternatively, Petitioners apply plain and ordinary meanings of all terms. Adanur ¶¶83-84.

Only terms necessary to resolve the controversy require construction. Because the prior art asserted herein discloses (or at minimum renders obvious) embodiments within the Claims’ indisputable scope, the Board need not construe the Claims’ outer bounds.³

A. Ornamental/Aesthetic Limitations

Utility patent claims reciting purely ornamental/aesthetic features are not entitled to patentable weight. *Crocs, Inc. v. Polliwalks, Inc.*, No. IPR2014-00423, 2014 WL 4181937, at *6 (PTAB Aug. 20, 2014) (“terms relating to the ornamental design of the shoe do not need to be interpreted because” ornamental/aesthetic features “cannot be relied upon for patentability”); *In re Seid*, 161 F.2d 229, 231 (C.C.P.A. 1947) (“ornamentation only” limitations not entitled to patentable weight). In other words, limitations related to the ornamental “shape and arrangement” of features rather than structural/mechanical functions cannot distinguish from prior art. *Id.*, 231; MPEP 2144.04.I (ornamental limitations

³ *E.g.*, “heel,” “midfoot,” “metatarsal,” and “toe” “region[s]” (all Claims); “hot melt yarn” (5-6, 10-12, 25); “stretch yarn” (9); “pointelle” (4, 16, 21-28).

“cannot...patentably distinguish...prior art”).

For example, in *Seid*, the court found claims reciting an “advertising display device” including a human-like “display figure” for placement on a bottle such that the arms rested on the bottle’s neck were obvious because the limitations reciting the “shape and arrangement of” the figure were ornamental and not entitled to patentable weight. *Id.* at 229-31. Similarly, the Board has found a claimed “three dimensional animal or character figure” on a shoe is not entitled to patentable weight. *Crocs*, 2014 WL 4181937, at *6.

Here, certain Claims recite ornamental/aesthetic features that are not entitled to patentable weight, including at least the entirety of limitations or additional limitations (for dependent claims) recited in [1.c.v], [1.c.vii], [2], [13.c.v], [13.c.vii], [14]-[15], [18.a.v], [18.a.vii], [19]-[20], [22]-[24], and [27]-[28], which recite ornamental/aesthetic wingtip/broguing designs; and [1.c.vi], [3]-[4], [13.c.vi], [16]-[17], [18.a.vi], [21.a.iv], which recite ornamental/aesthetic arrangements of different knit structures. Indeed, PO/named inventors have a design patent directed to Figures 1-4. Ex.1054.

With respect to the wingtip/broguing limitations, they merely recite the pattern, its location, and/or description of its shape, which have no structural or mechanical relationship to the claims. *Seid*, 161 F.2d at 231; *Adanur* ¶¶85-86.

The knit structure arrangement limitations similarly relate to ornamentation

(e.g., knit structure patterns) and have no structural or mechanical relationship to the claims. Adanur ¶¶85-87.

Because each of the features identified above, including the wingtip pattern with broguing/holes and knit structure arrangements, were contemplated by the prior art and “could have been produced” in a seamlessly knitted upper “by following [prior art] teachings,” the limitations are not entitled to patentable weight. *Cf. Hilton*, 148 U.S.P.Q. at 356. *See also* §§IX.A-E. But as explained herein, even if these features, or aspects thereof, are entitled to patentable weight, the prior art at minimum renders these features obvious. *See* §§IX.A-E; Adanur ¶¶83-88.

IX. GROUNDS OF UNPATENTABILITY

This Petition is supported by the Declaration of Dr. Sabit Adanur, which describes the prior art’s scope and content at the time of ’163. Adanur ¶¶1-324.

Although ’163 purports to have invented a shoe including a unitary one-piece knit upper including a seamlessly knit wingtip pattern and/or arrangement of two different knit structures, such a shoe was known. For example, **Dua** describes a seamless, unitary knitted dress shoe upper with patterns and specific knit types located in desired areas of the shoe for structural/aesthetic reasons. In addition, **Flusser** discloses the wingtip pattern is one of seven common men’s dress shoe designs, and **Litke** discloses wingtip-patterned shoes. As demonstrated below, the prior art renders the Claims unpatentable. And while many of the limitations are not

entitled to patentable weight (*see* §VIII.A), the analysis below addresses all recited limitations. Adanur ¶¶89-318.

A. Grounds 1-2: Dua alone and in view of '762/'288 (Claims 1-28)

Dua incorporates by reference **'762** and **'288**. Dua, [0022] (“[E]xamples of knitted...footwear uppers that have areas with different knit types to impart different properties may be found in ['762] to Dua...which [is] entirely incorporated herein by reference.”), [0043] (“Examples of...uppers having fused regions [are] found in ['288] to Dua, which is incorporated herein by reference.”). Thus, while **'762/'288** are cited separately herein, those disclosures are part of **Dua's** disclosure. At minimum, it would have been obvious to apply these teachings to **Dua** for the same reason and those described in §IX.A.2. Adanur ¶¶94-223.

1. Overview of Dua

Dua discloses an “article of footwear,” such as a “dress shoe,” including “sole structure and...upper,” where the upper is “formed of a knitted component...manufactured through a [] knitting process.” Dua, [0015], [0017], [0020]. Sections of the knitted component are formed as a “unitary knit construction” in which “structures are formed” through the “knitting process, rather than other processes (e.g., stitching, bonding, shaping)” performed after the knitting process. Dua, [0037]; *see also* '762, 2:66-3:9, 6:50-65. Adanur ¶¶97-99.

Dua discloses knitting the knitted component with “specific knit types [located] in desired areas” to provide “desired features” such as “advantageous structural attributes.” **Dua**, [0040]. For example, the knitted component may include “various apertures 41...in forefoot region 11” and other regions with “a more continuous or less-apertured configuration.” **Dua**, [0022]. “[T]he density of the knit,” “knit types,” and “yarn types” may be varied in areas of the upper. **Dua**, [0022]-[0023]; *see also* ’762, 4:17-38, 6:30-38, 8:29-59 (various yarn types); ’288, 3:56-4:11, 7:4-22, 8:9-57, 9:58-10:50 (hot melt yarns). Patterns may be formed by the areas having varied knit structure or density. **Dua**, [0044], Fig. 7D (apertures 41/dense area 48); *see also* ’762, 7:63-8:5 (conventional knitting machines could knit “complex patterns”); ’288, 8:9-57, 10:50-65 (fusible yarns used throughout upper or in select areas). **Adanur** ¶¶100-101.

2. Motivation to Apply ’762/’288’s Teachings to **Dua**

Dua expressly incorporates ’762/’288 by reference in its entirety. **Dua**, [0022], [0043]. The disclosures of ’762/’288 are the disclosures of **Dua**. To the extent those disclosures are not expressly part of **Dua**, POSITA would have been motivated to combine the teachings of ’762/’288 and **Dua**. **Dua** explains that the disclosed features of the knitted component “may be mixed and matched within a knitted component to form specific properties or structural attributes for a footwear upper.” **Dua**, [0040]. And **Dua** and ’762/’288 share common inventor, **Dua**, and

are assigned to Nike. In addition, **Dua** and **'762/'288** are analogous art, in the same field as **'163**, which includes footwear, and are reasonably pertinent to purported problems addressed by the named inventors of **'163** involving the improvement of the design and manufacture of knitted or textile footwear uppers. **'163**, 1:27-31, 3:25-27, 4:59-62; **Dua**, [0001]-[0004]; **'762**, 1:8-12; **'288**, 1:7-11; *Adanur* ¶¶102.

POSITA would have been motivated to apply the textile elements and uppers teachings of **'762** to **Dua's** textile element/upper as such a combination is expressly contemplated by **Dua**. **Dua**, [0040]. For example, POSITA would have been motivated to apply **'762's** teachings of a shoe upper having “a unitary knit structure with various sections having different physical properties” formed by, e.g., varying yarn types and knit structures used in each section, and disposed in “complex patterns” (**'762**, 2:66-3:9, 3:66-4:16, 7:63-8:4) to **Dua's** textile element. **Dua** explains that “specific knit types [located] in desired areas of the knitted component” may provide “desired features” such as “advantageous structural attributes.” **Dua**, [0040]. *Adanur* ¶¶103-104.

POSITA would have been motivated to apply **'762's** teachings of a shoe upper in which various sections including varied yarn types and knit structures are “seamlessly join[ed]” (**'762**, 2:66-3:9, 6:50-65) to **Dua's** textile element because, as taught by **'762**, doing so would advantageously prevent “the ends of yarns” from being “exposed, thereby decreasing the possibility of unraveling between sections”

and “material waste is reduced.” ’762, 6:50-65, 8:29-42; Adanur ¶105.

Dua and **’288** each disclose the use of thermoplastic polymer yarns for a textile shoe upper in which those yarns are heated to fuse yarns in the upper. **Dua**, [0043]; **’288**, 2:38-49. POSITA would have been motivated to apply **’288**’s teachings of knitting an upper with various proportions of thermoplastic polymer yarns to neutral yarns to **Dua**’s textile element/upper including thermoplastic polymer yarns because (1) **Dua** expressly contemplated such a combination, and (2) doing so would advantageously provide the ability to create areas of the upper with desired properties like abrasion resistance of fused textiles or stretch of unfused textile. **Dua**, [0043]; **’288**, 5:30-41, 9:58-10:50. Additionally, POSITA would have been motivated to apply **’288**’s teachings of placing the textile upper on a last when heating the upper disclosed therein to **Dua**’s textile element/upper because (1) **Dua** expressly contemplated such a combination, and (2) the last would advantageously provide support to the upper when heating the upper to form fused areas. **Dua**, [0043]; **’288**, 5:30-41, 9:58-10:50; Adanur ¶¶106-107.

Accordingly, POSITA would have had a reasonable expectation of success applying **’762/’288**’s teachings to **Dua**’s knit upper, and POSITA would have known that the combination (yielding the claimed limitations) would predictably work and provide the expected results. Adanur ¶108.

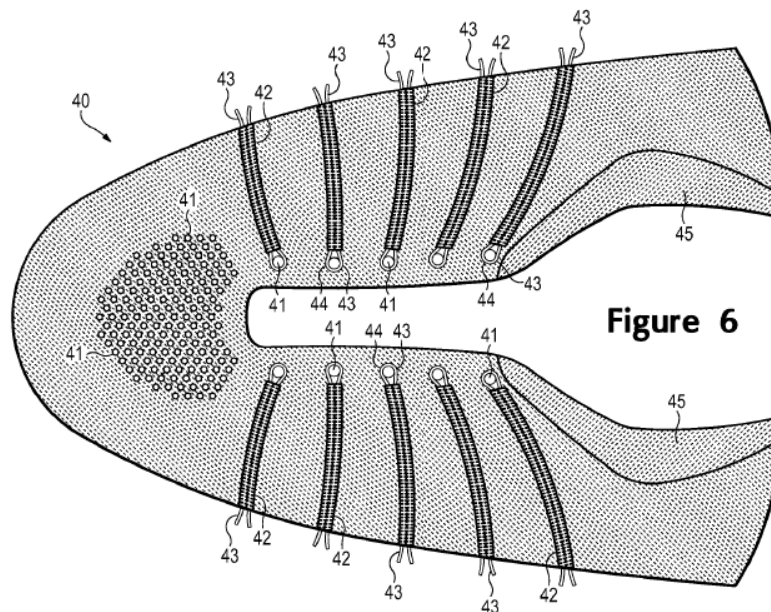
3. Analysis of Claims 18-20

The Petition addresses claims 18-20 first as the remaining claims generally recite limitations similar to or the same as claims 18-20.

a. [18.pre] A method of manufacturing an upper for an article of footwear, the method comprising

To the extent limiting, **Dua** discloses **a method of manufacturing an upper for an article of footwear** (e.g., “knitting processes...to form a knitted component for an upper of an article of footwear”). Dua, [0004]. Adanur ¶¶109-111.

For example, **Dua** discloses an “article of footwear” (10 below) that includes “a sole structure and an upper” (20 and 30 below), where the upper is “formed of a knitted component” (40 below) that may “be manufactured through a flat knitting process” or other knitting techniques. Dua, [0017], [0020], [0034]. Adanur ¶112.



Dua, Fig. 6.

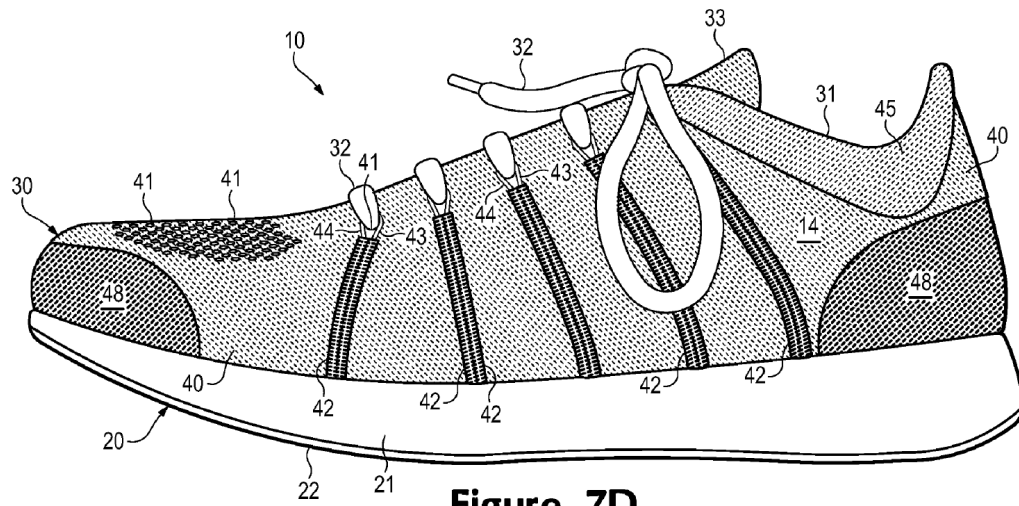


Figure 7D

Dua, Fig. 7D.

- b. [18.a.i] knitting with a knitting machine to form a knitted element of the upper such that the knitted element is of a unitary one-piece construction comprising

Dua discloses knitting with a knitting machine to form a knitted element of the upper (e.g., “knitting machines may [be used to] form[]...knitted components 40”) such that the knitted element is of a unitary one-piece construction comprising (e.g., “[k]nitted component 40” is “formed of unitary knit

construction”). Dua, [0036]-[0037]; *see also* [18.pre].⁴ Adanur ¶¶113-114.

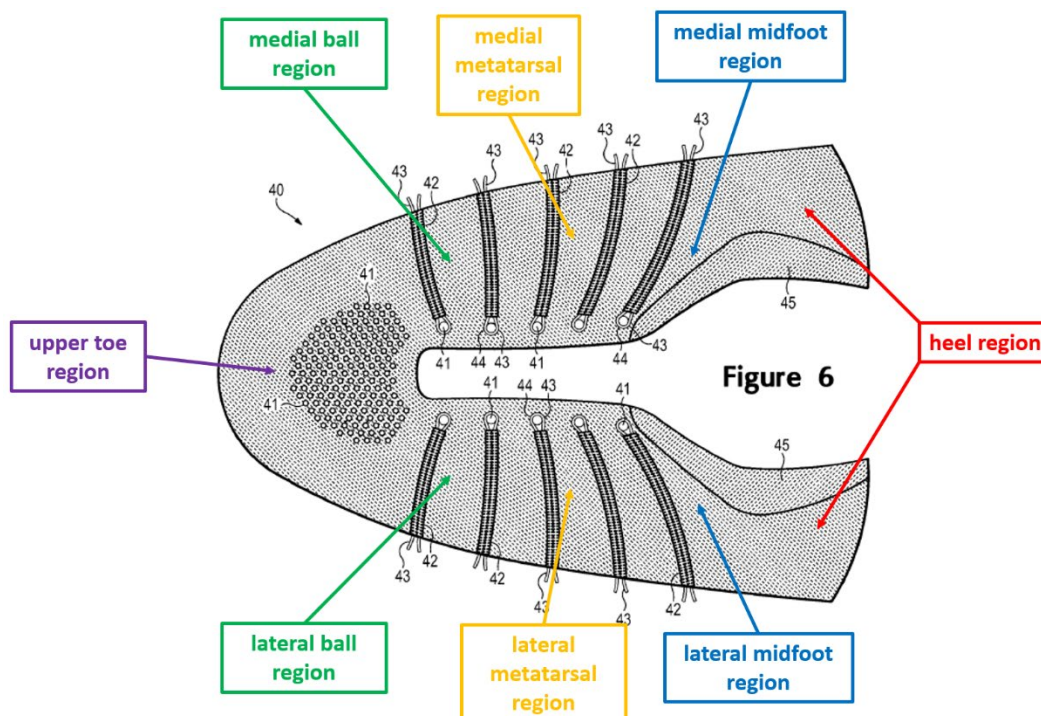
Dua discloses using “knitting machines” to form knitted components of the upper. Dua, [0036]-[0037]. The knitted components are “formed of unitary knit construction” through a “single...knitting process.” Dua, [0035], [0037]. Adanur ¶115.

- c. [18.a.ii] a knitted upper heel region, a knitted upper lateral midfoot region, a knitted upper medial midfoot region, a knitted upper metatarsal region, a knitted upper lateral ball region, a knitted upper medial ball region, and a knitted upper toe region

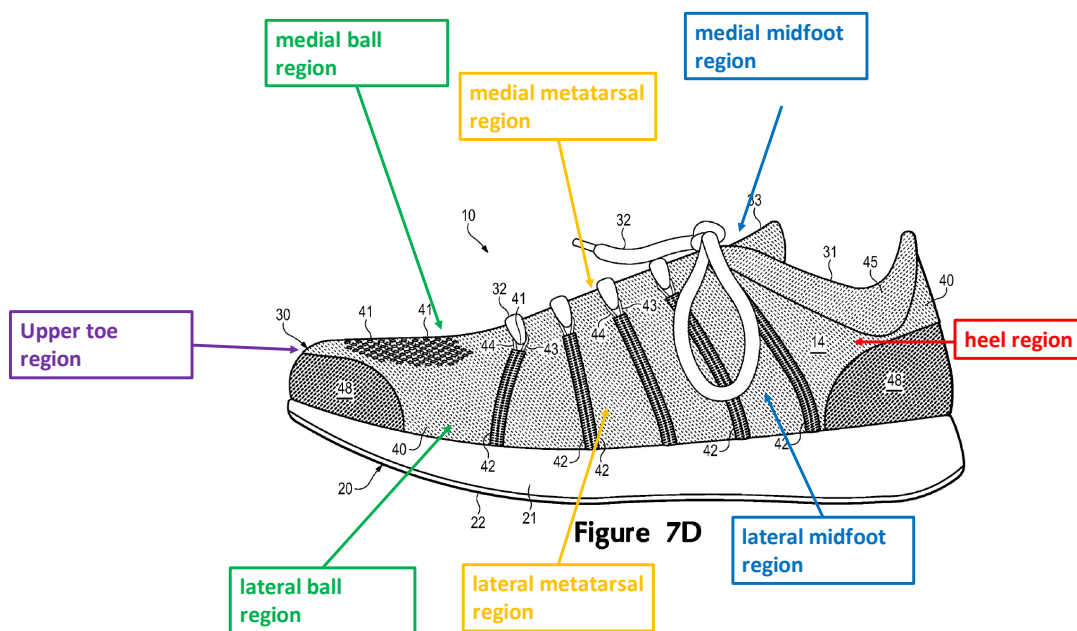
Dua discloses this limitation (e.g., Fig. 6 below). Adanur ¶¶116-117.

For example, **Dua** discloses that “a forefoot region 11, a midfoot region 12, and a heel region 13” and “[l]ateral 14 and medial side 15 extend through each of regions 11-13,” where the “[k]nitted component 40 extends through each of regions 11-13, along both lateral side 14 and medial side 15, over forefoot region 11, and around heel region 13.” Dua, [0017], Figs. 6 and 7D. The knitted element of **Dua** includes the claimed regions as they correspond to the regions of a foot relative to the shoe. Adanur ¶118.

⁴ As used herein, references to claims/limitations (e.g., [19], [18.pre]) in a given ground refer to claims/limitations in that ground. References to claims/limitations in other grounds use the format [claim/limitation](Ground#) (e.g., [18.pre](G1-2)).



Dua, Fig. 6.

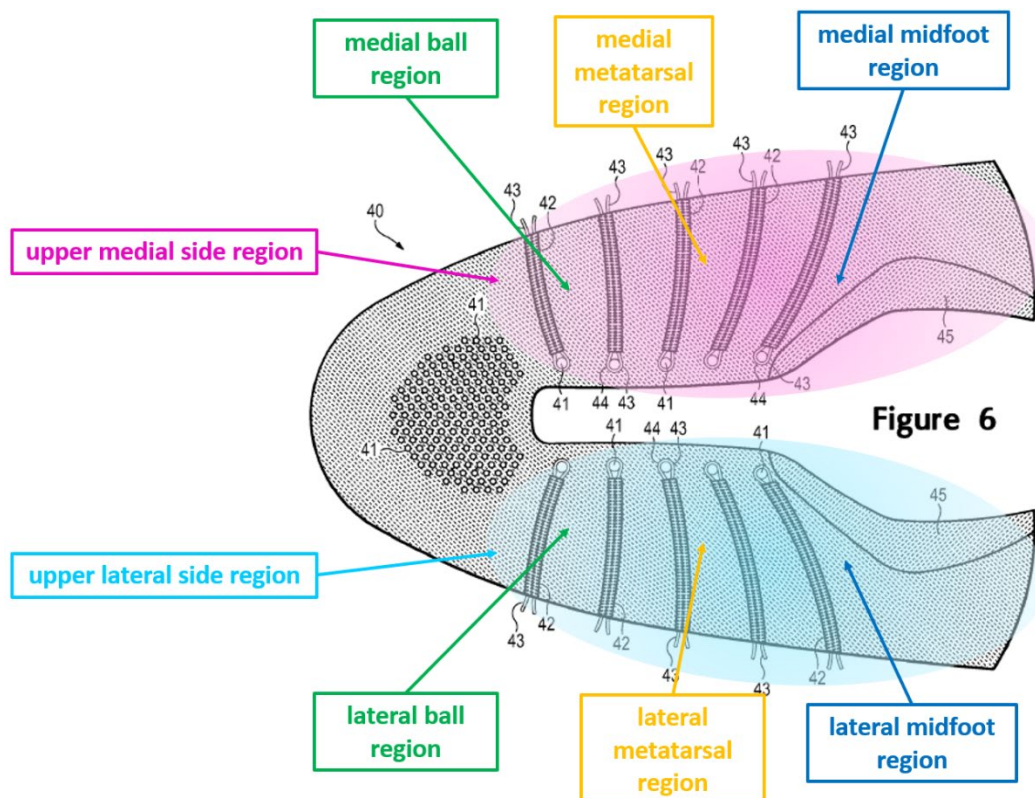


Dua, Fig. 7D.

- d. [18.a.iii] the knitted upper metatarsal region including a knitted upper lateral metatarsal region and a knitted upper medial metatarsal region, the upper having a knitted upper lateral side region and a knitted upper medial side region, the upper lateral side region including the upper lateral midfoot region, the upper lateral metatarsal region and the upper lateral ball region, the upper medial side region including the upper medial midfoot region, the upper medial metatarsal region and the upper medial ball region

Dua discloses this limitation (e.g., Fig. 6 below). See also [18.a.ii]. Adanur

¶¶119-121.



Dua, Fig. 6.

- e. **[18.a.iv] the upper toe region being seamlessly knitted with the upper medial and lateral ball regions during the knitting process, the upper medial and lateral ball regions being seamlessly knitted with the knitted upper metatarsal region during the knitting process, the knitted upper metatarsal region being seamlessly knitted with the upper lateral and medial midfoot regions during the knitting process**

Dua discloses this limitation (*e.g.*, “the features and structures are formed of unitary knit construction when incorporated into knitted component 40 through the flat knitting process”; “section[s]” of the “upper” are “joined seamlessly”). *Dua*, [0035]; ’762, 2:23-28; *see also* [18.pre]-[18.a.iii]. *Adanur* ¶¶122-123.

For example, **Dua** discloses “the regions of knitted component 40...are formed of unitary knit construction through the flat knitting process,” *i.e.*, without “supplemental stitching, bonding, or shaping processes.” *Dua*, [0035]. Such a unitary construction “without supplemental stitching” refers to seamlessly knitting the various regions of the shoe. **Dua** further discloses “an upper that is formed as a unitary knit structure with various sections” that are “joined in a generally seamless manner.” ’762, 3:2-9. *See also* annotations of Fig. 6, [18.a.ii]. *Adanur* ¶¶124-125.

- f. **[18.a.v] the knitted element including a wingtip pattern, the wingtip pattern being portions of at least the upper toe region, the upper lateral and medial ball regions, and the upper lateral and medial metatarsal regions**

Dua renders obvious this limitation (*e.g.*, “various knit types that impart

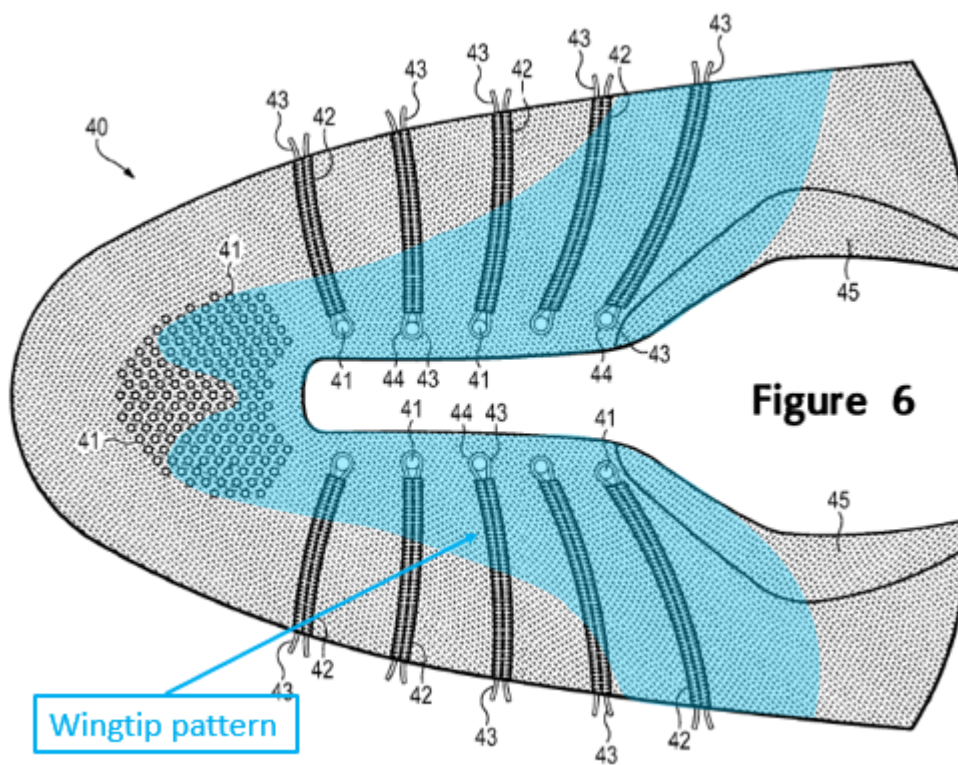
different properties to separate areas of [the] upper” such “areas of upper hav[ing] more or less apertured configuration” based on desired properties). Dua, [0022], [0035]; *see also* [18.a.i]-[18.a.iii]. Adanur ¶¶126-127.

For example, **Dua** discloses using “complex patterns” (’762, 7:63-8:5), e.g., patterns formed by “various knit types to impart different properties to separate areas of upper 30” (Dua, [0022]). Those patterns can be portions of “many regions of the upper.” Dua, [0022], [0046], Fig. 7G (depicting knit structures such as “tubes 42” extending longitudinally “through each region 11-13,” i.e., forefoot 11, midfoot 12, and heel 13 regions); Adanur ¶¶128-129.

POSITA would have found it obvious to try a wingtip pattern as one of **Dua’s** “complex patterns” for a “dress shoe” knitted into the upper. Dua, [0015]; ’762, 7:63-8:5; Adanur ¶130. There were a finite number of standard, well-known dress shoe styles, including the plain toe, plain cap-toe, cap-toe brogue, monk strap, loafer, and “wingtip brogue” styles.⁵ *Id.* Thus, POSITA would have found it obvious to try the well-known wingtip dress shoe pattern as **Dua’s** pattern, and this would have been predictable and have had a reasonable expectation of success because applying the wingtip pattern would involve simply applying **Dua’s** teachings regarding

⁵ *See, e.g.*, Flusser, 99-104 (“approximately seven” dress shoe styles); Litke, Fig. 3 (wingtip pattern 15i).

creating a seamlessly knit, patterned upper for “dress shoes” to form a wingtip patterned dress shoe across the regions toward the toe and front of the shoe, such as the upper toe region, the upper lateral and medial ball regions, and the upper lateral and medial metatarsal regions in order to advantageously display the full wing-tip pattern as illustrated in annotated Fig. 6 below. Dua, [0015]; ’762, 7:63-8:5 (“complex patterns”); Adanur ¶¶131-132.



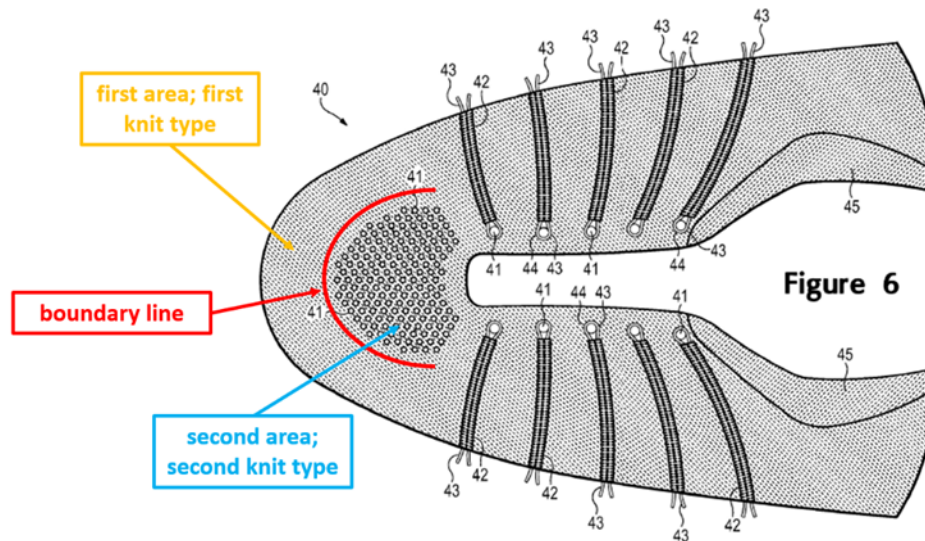
Dua, Fig. 6.⁶

- g. [18.a.vi] the knitted element comprising a first area of a first type of knit structure and a second area of a second type of knit structure, the second type of knit structure being different from the first type of knit structure, the first area having a rear boundary, the second area having a forward boundary, the rear boundary of the first area and the forward boundary of the second area being coincident and coextensive with each other and defining a boundary line between the first and second areas

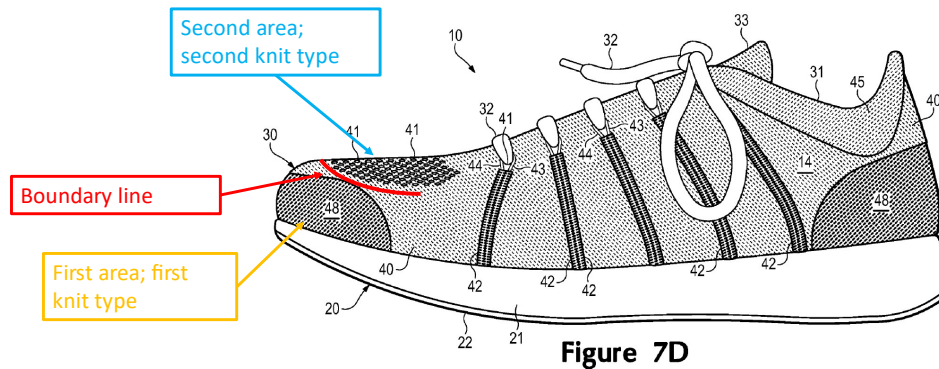
Dua discloses the knitted element comprising **a first area of a first type of knit structure** and **a second area of a second type of knit structure** (e.g., “[k]nitted component 40 incorporates various knit types”), **the second type of knit structure being different from the first type of knit structure** (e.g., “areas of upper 30 hav[ing] a more continuous or less-apertured configuration” or higher “knit density”), **the first area having a rear boundary, the second area having a forward boundary, the rear boundary of the first area and the forward boundary of the second area being coincident and coextensive with each other and defining a boundary line between the first and second areas** (e.g., Figs. 6 and 7D below). Dua, [0022]; *see also* [18.a.i]. Adanur ¶¶133-134.

⁶ While the wingtip annotation is illustrative, the claims are met regardless of the particular shape of the wingtip.

For example, **Dua** discloses that the knitted component may have types of knit structures, such as “apertures 41...in the forefoot region” and other areas with a “more continuous or less-apertured configuration.” Dua, [0022], [0035]. In addition, **Dua** discloses a dense area (48 in Fig. 7D below) that has an increased “knit density” in the forefoot region 11 (i.e., toe). Adanur ¶¶135-137.



Dua, Fig. 6.



Dua, Fig. 7D.

- h. [18.a.vii] the wingtip pattern comprising the boundary line, the boundary line having a medial boundary line and a lateral boundary line, the medial boundary line comprising a wing-shaped curved line having a medial side portion extending forward from at least the upper medial metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the lateral boundary line comprising a wing-shaped curved line having a lateral side portion extending forward from at least the upper lateral metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the rearwardly extending central portion of the medial boundary line converging toward the rearwardly extending central portion of the lateral boundary line

Dua renders obvious this limitation. Dua, [0022], [0035]; *see also* [18.a.i]-

[18.a.vi]. Adanur ¶¶138-139.

For example, **Dua** discloses using “complex patterns” (’762, 7:63-8:5), *e.g.*, patterns formed by “various knit types to impart different properties to separate areas of upper 30” such “areas of upper hav[ing] more or less apertured configuration” based on desired properties (Dua, [0022], [0035]). Those patterns can be portions of “many regions of the upper.” Dua, [0022], [0046], Fig. 7G (depicting knit structures, *e.g.*, “tubes 42” extending longitudinally “through each region 11-13,” *i.e.*, forefoot region 11, midfoot region 12, and heel region 13). As discussed in [18.a.vi], **Dua** already discloses two different areas with a boundary line between them. Adanur ¶140.

As discussed in [18.a.v], it would have been obvious to try a wingtip pattern. The wingtip pattern reshapes and extends the pattern shown in Fig. 6. The wingtip pattern comprises a boundary line between two regions, the boundary line having a medial boundary line and a lateral boundary line, the medial boundary line comprising a wing-shaped curved line having a medial side portion extending forward from at least the upper medial metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the lateral boundary line comprising a wing-shaped curved line having a lateral side portion extending forward from at least the upper lateral metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the rearwardly

extending central portion of the medial boundary line converging toward the rearwardly extending central portion of the lateral boundary line.⁷ Adanur ¶¶141-142.

- i. **[18.b] the upper toe region being seamlessly knitted with the upper medial and lateral ball regions during the knitting step, the upper medial and lateral ball regions being seamlessly knitted with the knitted upper metatarsal region during the knitting step, the knitted upper metatarsal region being seamlessly knitted with the upper lateral and medial midfoot regions during the knitting step**

See [18.a.iv]. This limitation includes the same features recited in [18.a.iv] except that it recites “during the *knitting step*” rather than “during the *knitting process*” and is met for the same reasons. Adanur ¶¶143-146.

- j. **[18.c] the first and second areas and the wingtip pattern being seamlessly knitted during the knitting step.**

Dua renders obvious this limitation (*e.g.*, “a flat knitting process may form knitted component 40 to have...various knit types” that “may be incorporated into knitted component 40 through a single flat knitting process”). Dua, [0035]; *see also* [18.a.i]-[18.a.vi]. Adanur ¶147.

For example, **Dua** discloses “a flat knitting process may form knitted

⁷ *Supra* n.5.

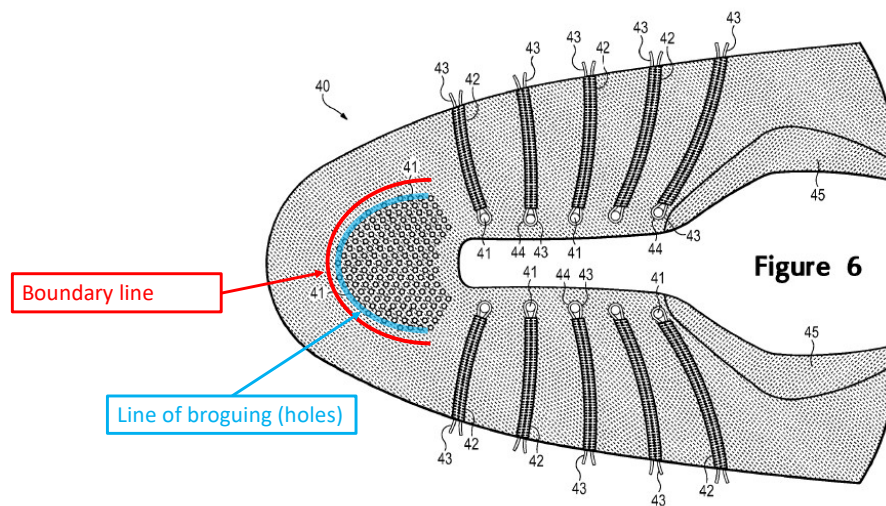
component 40 to have, for example,...various knit types that impart different properties to separate areas of upper 30” that are incorporated into a unitary “knitted component 40 through a single flat knitting process.” Dua, [0035], [0037]. Such a unitary construction “without supplemental stitching” refers to seamlessly knitting the patterns formed by the variations between the knit types. Adanur ¶148. **Dua** further discloses “an upper that is formed as a unitary knit structure with various sections having different physical properties” that are “joined in a generally seamless manner.” ’762, 3:2-9. *See also* [18.a.vi] (annotated Fig. 6). Adanur ¶149.

As discussed in [18.a.v] and [18.a.vii], it would have been obvious to try a wingtip pattern. *Id.*

- k. [19] A method as set forth in claim 18 wherein the knitted element includes a line of broguing adjacent the boundary line, the knitted element being knitted with the line of broguing during the knitting step

See [18]. **Dua discloses this limitation** (e.g., “apertures 41” in various “areas of the upper”; Fig. 6 below). Dua, [0022]; Fig. 6. Adanur ¶¶150-151.

For example, **Dua** discloses forming “various apertures” in “many areas of the upper.” Dua, [0022]. Those apertures are formed during the knitting process by, e.g., omitting “stitch[es] in specific locations” and can form “complex patterns.” ’762, 5:31-43, 7:63-8:5. Adanur ¶¶152.



Dua, Fig. 6.

As discussed in [18.a.v] and [18.a.vii], it would have been obvious to try a wingtip pattern. Adanur ¶153. Applying the wingtip pattern would involve simply applying Dua’s teachings regarding creating apertures by omitting “stitch[es] in specific locations” in a seamlessly knit, patterned upper for “dress shoes” to form a wingtip patterned dress shoe, which includes a line of broguing (e.g., holes) to form the pattern. Dua, [0015]; ’762, 5:31-44, 7:63-8:5; Adanur ¶154.

1. [20] A method as set forth in claim 18 wherein the knitted element includes medial line of broguing and a lateral line of broguing, the medial line of broguing being adjacent the medial boundary line, the lateral line of broguing being adjacent the lateral boundary line, the medial line of broguing comprising a curved line of holes, the lateral line of broguing comprising a curved line of holes, the knitted element being knitted with the medial and lateral lines of broguing during the knitting step.

See [18]-[19]. This limitation includes the same features recited in [19] except that it further recites a “medial” and “lateral line of broguing” adjacent the boundary rather than “lines of broguing adjacent the boundary line” and is met for the same reasons. *Adanur* ¶¶155-158.

4. Analysis of Related Claims 1, 3-4, 13-14, 16-17, and 21-24

Independent claims 1, 13, and 21 and their dependent claims addressed below recite limitations similar to or the same as claims 18-20.

a. [1.pre-1.b], [13.pre-13.b], [21.pre], and [21.a.v]

[1.pre-1.b] and [13.pre-13.b] are similar to [18.pre] except these claims recite “a shoe” including “a sole secured to [a] *knit* upper” rather than “a method of manufacturing an upper for an article of footwear.” Likewise, [21.pre] is similar to [18.pre] except it further recites “a *knitted* upper and sole” and “attaching the sole”/“upper” ([21.a.v]).” *Dua* discloses an “article of footwear,” e.g., a dress shoe, having a knitted upper and “a sole structure secured to the upper.” *Dua*, Abstract,

[0015]. Thus, **Dua** discloses and renders obvious these limitations (including preambles, to the extent limiting). Adanur ¶¶159-162.

b. [1.c.i], [13.c.i], and [21.a.i]

[1.c.i], [13.c.i], and [18.a.i] recite the same substantive features and are met for the same reasons. [21.a.i] and [18.a.i] are identical. Adanur ¶¶163-164.

c. [1.c.ii], [13.c.ii], and [21.a.ii]

[1.c.ii] and [13.c.ii] recite a subset of [18.a.i-18.a.ii]'s features. [21.a.ii] and [18.a.ii] are identical. Adanur ¶¶165-166.

d. [1.c.iii], [13.c.iii], and [21.a.iii]

[1.c.iii] and [18.a.iii] are identical. [13.c.iii], [21.a.iii], and [18.a.iii] recite the same substantive features and are met for the same reasons. Adanur ¶167.

e. [1.c.iv] and [13.c.iv]

[1.c.iv] and [18.a.iv] are identical. [13.c.iv] recites a subset of [18.a.iv]'s features. Adanur ¶168.

f. [1.c.v-1.c.vii] and [13.c.v-13.c.vii]

[1.c.v-1.c.vii], [13.c.v-13.c.vii], and [18.a.v-18.a.vii] are identical. Adanur ¶169.

g. [21.b]

[21.b] and [18.b] are identical. Adanur ¶170.

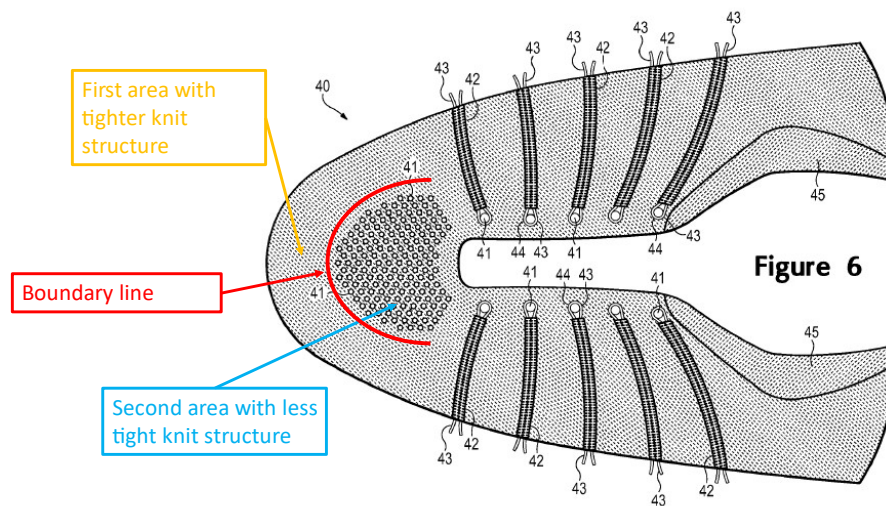
h. [21.c]

[21.c] recites a subset of [18.c]'s features. Adanur ¶171.

i. [3]-[4], [16]-[17], and [21.a.iv]

[3]-[4], [16]-[17], and [21.a.iv] are similar to [18.a.vi] except that these claims/limitations specify the “first type of knit structure is more tightly knit than the second” ([3], [17]) or that the first area is “jersey stitch knit” and the second area is “pointelle stitch knit” ([4], [16], [21.a.iv]). [21.a.iv] further recites “the first area being at least in the upper toe region, the second area being at least in the upper lateral and medial metatarsal regions.” **Dua** discloses these limitations and at minimum renders them obvious. Adanur ¶¶172-173.

With respect to [3], [17], **Dua** discloses apertures 41 with an adjacent region that is more tightly knit, i.e., has a “less apertured configuration” as shown in Fig. 6. **Dua**, [0022]. **Dua** further discloses “increas[ing] the knit density in specific areas,” e.g., forefoot region, resulting in areas of greater and lesser knit density, i.e., areas having knit structures that are more tightly knit than others. **Dua**, [0022], [0044]. Adanur ¶¶174-175.



Dua, Fig. 6.

With respect to [4], [16], [21.a.iv], **Dua** discloses that portions of the upper include, e.g., a “jersey knit” (’762, 4:17-38), a “more continuous or less-apertured configuration,” and/or a more-apertured region (Dua, [0022]). There are a variety of inconsistent definitions for “pointelle” in the art. *E.g.*, Ex. 1021, 71-73; Ex. 1038, 6; Ex. 1052, 1053. Regardless of the term’s scope, it is either disclosed or rendered obvious by **Dua’s** teachings of an “apertured configuration,” which is formed via the knitting process, e.g., by omitting stitches or using “tuck” stitches. Dua, [0022], [0037]; ’762, 5:31-44, 8:29-42; *see also* ’011, 9:36-64 (incorporated by reference into Dua (Dua, [0022])). To the extent “pointelle” requires something more, regardless of its scope, it would have been obvious to a POSITA to include the

known openwork pointelle knit structure in Dua’s knitted upper because doing so would provide the same improvements (e.g., “greater permeability,” “flexibility,” and aesthetics) as Dua’s openwork structure (i.e., apertures). Dua, [0022]. A POSITA thus would have been motivated to apply the known pointelle structure using the same known knitting techniques disclosed in Dua to form apertures to achieve these improvements (’762, 5:31-44, 8:29-42; Dua, [0022], [0037]; ’011, 9:36-64) in a predictable manner and with a reasonable expectation of success. Adanur ¶¶176-178.

Dua further discloses that the first area is in the toe region. *See* [18.a.vi] (annotated Fig. 6); Adanur ¶176-180.

As discussed in [18.a.v] and [18.vii], it would have been obvious to try a wingtip pattern. The wingtip pattern reshapes and extends the pattern shown in Fig. 6, such that the boundary line between the first and second areas—and therefore the second area itself—extends into, and is in, the upper lateral and medial metatarsal regions. *Id.*

j. [22]-[24]

[22] is identical to [19], and [23]-[24] include the same substantive features recited in [20] and are met for the same reasons. Adanur ¶¶181-182.

k. [14]

[14] is similar to [19]-[20] except that this claim recites that the “wingtip

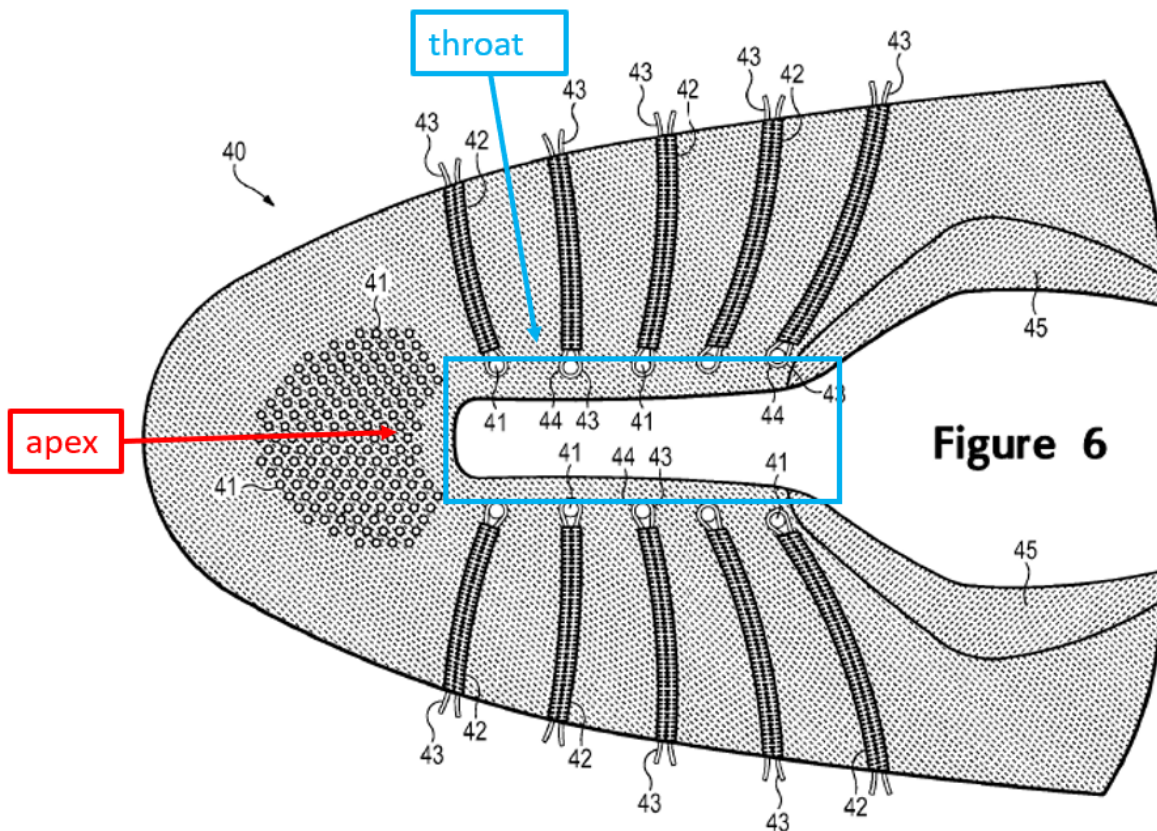
pattern comprises a medial line of broguing and a lateral line of broguing” having a specified configuration rather than a line of broguing that is adjacent the boundary line that has the same specified configuration. Adanur ¶183. Because the lines of broguing include the specified configuration of the wingtip pattern whether the wingtip pattern comprises the lines of broguing or the lines of broguing are adjacent to the wingtip pattern, this claim is met for the same reasons. *Id.*

5. Analysis of Remaining Claims 2, 5-12, 15, and 25-28

- a. [2] A shoe as set forth in claim 1 wherein the upper further comprises a **throat**, and wherein **the apex** points toward **the throat**.

See [1], [18.a.vii]. **Dua renders obvious this limitation** (*e.g.*, *see* Fig. 6 below). Adanur ¶¶184-185.

For example, **Dua** discloses that the upper includes an ankle opening and a throat for a tongue. The claimed “apex” lacks antecedent basis, but regardless of the outer bounds of the term, it at least covers the apex of the wingtip pattern. While the wingtip pattern is not entitled to patentable weight (*see* §VIII.A), even if it were, the pattern (including its apex) is rendered obvious by **Dua** for the reasons discussed in [18.a.v], [18.a.vii]. Adanur ¶186.



Dua, Fig. 6.

- b. [5] A shoe as set forth in claim 1 wherein the knitted element comprises covered spandex yarn and hot melt yarn, the hot melt yarn being knitted with the covered spandex yarn during the knitting process.

See [1]. Dua discloses the knitted element comprises covered spandex yarn (*e.g.*, “knitted component 40 may incorporate various yarn types” including “elastane”; “yarn that incorporates an elastane fiber” such as “covered LYCRA”) and hot melt yarn (*e.g.*, “yarns that incorporate thermoplastic polymer materials”),

the hot melt yarn being knitted with the covered spandex yarn during the knitting process (*e.g.*, “areas may be formed from yarns that incorporate thermoplastic polymer materials” ; “knitting machine may...place fusible strands in only selected areas of upper,” with “neutral” (*i.e.*, non-fusible/thermoplastic) yarns in others). Dua, [0023], [0043]; '762, 4:17-38; '288, 8:49-57, 10:16-49. Adanur ¶187.

For example, **Dua** discloses knitting an upper with “covered LYCRA” ('762, 4:17-38) and “yarns that incorporate thermoplastic polymer materials” throughout the upper or in selected areas (Dua, [0023], [0043]; '288, 8:49-57, 10:16-49). Covered LYCRA is covered spandex because LYCRA is a tradename for elastane/spandex, which are synonymous.⁸ '762, 4:17-38; Adanur ¶188. Hot melt yarns are yarns that incorporate thermoplastic materials like a thermoplastic polymer.⁹ Dua discloses knitting these materials with one another in forming the upper. Dua, [0040], [0043]. Adanur ¶¶188-190.

⁸ See, *e.g.*, 16 C.F.R. § 303.7(k); Ex.1015, 12:65-13:14.

⁹ See, *e.g.*, Ex.1016, [0057]-[0059] (“hot-melt synthetic material, such as polyamide [and] polyurethane,” that can be melted to adhere to adjacent yarns/fibers); Ex.1017, [0074]-[0075] (similar).

- c. **[6] A shoe as set forth in claim 5 wherein the hot melt yarns constitute at least 15% by mass of the knitted element.**

See [5]. Dua renders obvious this additional limitation (*e.g.*, “yarns that incorporate thermoplastic polymer materials”). Dua, [0043]. Adanur ¶191.

POSITA would have understood (or at minimum found obvious) that **Dua** discloses the hot melt yarns constitute at least 15% by mass of the knitted element because Dua discloses that a yarn incorporating thermoplastic polymer (*i.e.*, hot melt yarn) can be one of the yarns (*i.e.*, along with the covered spandex yarn) that is used in “the entirety of the knitted component.” Dua, [0043]; ’288, 8:49-57, 10:16-49; Adanur ¶192. Equal amounts of such yarns used in the entirety of the upper would result in the hot melt yarns being up to about 50% (and thus at least 15%) by mass of the knitted element. Adanur ¶193.

- d. **[7] A shoe as set forth in claim 6 wherein the covered spandex yarn constitute at least 50% by mass of the knitted element.**

See [6]. Dua renders obvious this additional limitation (*e.g.*, “knitted component 40 may incorporate various yarn types” including “elastane”; “covered LYCRA”). Dua, [0023]; ’762, 4:17-38. Adanur ¶194.

POSITA would have understood (or at minimum found obvious) that **Dua** discloses the covered spandex yarn constitutes at least 50% by mass of the knitted element because Dua discloses “covered LYCRA” as one of the yarns (*i.e.*, along

with the hot melt yarn) used in each section of the shoe to provide physical properties such as stretch and recovery. '762, 4:17-38, 6:12-29; '288, 8:49-57, 10:16-49; Adanur ¶195. Dua discloses the various percentage combinations of these two yarns as the amount of each is taught as varying from being not used at all to being used in “the entirety of the knitted component.” Dua, [0023], [0040], [0043]; '762 6:12-29; '288, 8:49-57, 10:16-49. Thus, Dua discloses and at least renders obvious the covered spandex yarns being at least 50% by mass of the knitted element (the upper). Adanur ¶196.

- e. **[8] A shoe as set forth in claim 7 wherein the covered spandex yarn comprises polyester covered spandex yarn.**

See [7]. Dua renders obvious this additional limitation (*e.g.*, “knitted component 40 may incorporate various yarn types” including “elastane” and “polyester”; “covered LYCRA”). Dua, [0023]; '762, 4:17-38. Adanur ¶197.

Dua discloses using “covered LYCRA” and explains that “other fibers or filaments exhibiting elastic properties may also be utilized.” '762, 4:17-38; Dua, [0023]; Adanur ¶198. **Dua** further discloses “polyester” as a filament that can be parts of a “multifilament yarn”—like covered LYCRA. Dua, [0023]. Thus, POSITA would have found it obvious to use polyester covering filaments in Dua’s covered LYCRA to obtain yarn with enhanced durability from the polyester, and polyester covered LYCRA was well-known and would have been straightforward to

use for this purpose.¹⁰ Dua, [0023]; Adanur ¶¶199-200.

- f. **[9] A shoe as set forth in claim 8 wherein the knitted element further comprises stretch yarn, the stretch yarn constituting at least 5% by mass of the knitted element.**

See [8]. Dua renders obvious this additional limitation (*e.g.*, sections can be “knit with a stretch yarn”). Dua, [0023]; ’762, 8:43-59. Adanur ¶201.

POSITA would have understood (or at minimum found obvious) that **Dua** discloses the stretch yarn constitutes at least 5% by mass of the knitted element because Dua discloses that sections, such as the instep section, can be “knit with a stretch yarn.” ’762, 4:17-38, 6:12-29; Dua, [0023]; Adanur ¶202. Dua discloses the various percentage combinations of these three yarns as the amount of each can vary from being not used at all to being used in each section of the knitted component. Dua, [0023], [0040], [0043]; ’762 6:12-29; ’288, 8:49-57, 10:16-49. Adanur ¶203.

- g. **[10] A shoe as set forth in claim 5 wherein the covered spandex yarn has a linear density of between about 120 denier and about 180 denier, and wherein the hot melt yarn has a linear density of between about 80 denier and about 120 denier.**

See [5]. Dua renders obvious the covered spandex yarn (*see* [5]) has a

¹⁰ *See, e.g.*, Podhajny, [0035] (disclosing upper with polyester covered spandex yarn).

linear density of between about 120 denier and about 180 denier, and wherein the hot melt yarn (see [5]) has a linear density of between about 80 denier and about 120 denier (e.g., “different deniers may affect the properties of the upper”). Dua, [0023]. Adanur ¶204.

’163 does not disclose that these claimed ranges are critical. And because Dua discloses the yarns it is using can have “different deniers” and does not limit those deniers to any particular ranges (Dua [0023]), POSITA would have understood (or at minimum found obvious) that **Dua’s** disclosures thus include covered spandex yarn with a linear density of between about 120 denier and about 180 denier, and hot melt yarn with a linear density of between about 80 denier and about 120 denier. Adanur ¶205. POSITA would have been motivated to use various different deniers (including these ranges) as Dua discloses “both the materials forming the yarn and other aspects of the yarn may be selected to impart a variety of properties to separate areas of [the] upper”—including using “different deniers.” Dua, [0023]. Adanur ¶206. In addition, POSITA would have been motivated and had a reasonable expectation of success in using these ranges as they were well-known and selecting

such deniers would have been a matter of design choice.¹¹ Adanur ¶207.

- h. [11] A shoe as set forth in claim 1 wherein the knitted element comprises polyester yarn and hot melt yarn, the hot melt yarn being knitted with the polyester yarn during the knitting process.**

See [1], [5]. **Dua discloses the knitted element comprises polyester yarn** (*e.g.*, “knitted component 40 may incorporate various yarn types” including “polyester”) **and hot melt yarn** (*see* [5]), **the hot melt yarn being knitted with the polyester yarn during the knitting process** (*e.g.*, “areas may be formed from yarns that incorporate thermoplastic polymer materials”; “knitting machine may...place fusible strands in only selected areas of upper,” with “neutral” (*i.e.*, non-fusible/thermoplastic) yarns in others). Dua, [0023], [0043]; ’762, 4:17-38; ’288, 8:49-57, 10:16-49. Adanur ¶208.

For example, **Dua** discloses knitting an upper with a “polyester” yarn and “yarns that incorporate thermoplastic polymer materials” (hot melt yarns) throughout the upper or in selected areas. Dua, [0023], [0043]; ’288, 8:49-57, 10:16-49; Adanur ¶¶209-210.

¹¹ *See, e.g.*, Blakely, [0092] (disclosing shoes including 50-150 denier yarn comprised of spandex/elastane; and 33-100 or 100-300 denier hot-melt yarn (thermoplastic polyurethane)).

- i. **[12] A shoe as set forth in claim 1 wherein the knitted element comprises hot melt yarn, the hot melt yarn constituting at least 15% by mass of the knitted element.**

See [6], [1]. Adanur ¶211.

- j. **[15] A shoe as set forth in claim 14 wherein the central broguing portions of the medial and lateral lines of broguing meet at a rearwardly pointing apex.**

See [2], [14]. **Dua renders obvious this additional limitation.** Dua, Fig.

6. Adanur ¶212. For example, **Dua** discloses that the upper includes an ankle opening and a throat for a tongue. While the wingtip pattern/broguing are not entitled to patentable weight (*see* §VIII.A), even if they were, the pattern comprised of lines of broguing (including a rearwardly pointing apex) is rendered obvious by Dua for the reasons discussed in [18.a.v], [18.a.vii], and [14]. Adanur ¶213.

- k. **[25] A method as set forth in claim 24 wherein the upper is knitted during the knitting step with at least first and second yarns, the first yarn being of a hot melt yarn, the second yarn being of a yarn other than a hot melt yarn.**

See [5], [11], [24]. Adanur ¶214.

- l. [26] A method as set forth in claim 25 further comprising: placing the upper around a last; applying heat to the upper while the upper is around the last to cause the hot melt yarn to affix to the second yarn.**

See [25]. **Dua** discloses placing the upper around a last (*e.g.*, “a last...placed within the upper”); **applying heat to the upper while the upper is around the last to cause the hot melt yarn to affix to the second yarn** (*e.g.*, “yarns that incorporate thermoplastic polymer materials” are “heated to modify their properties”). *Dua*, [0043]; '288, 9:58-10:49. *Adanur* ¶215.

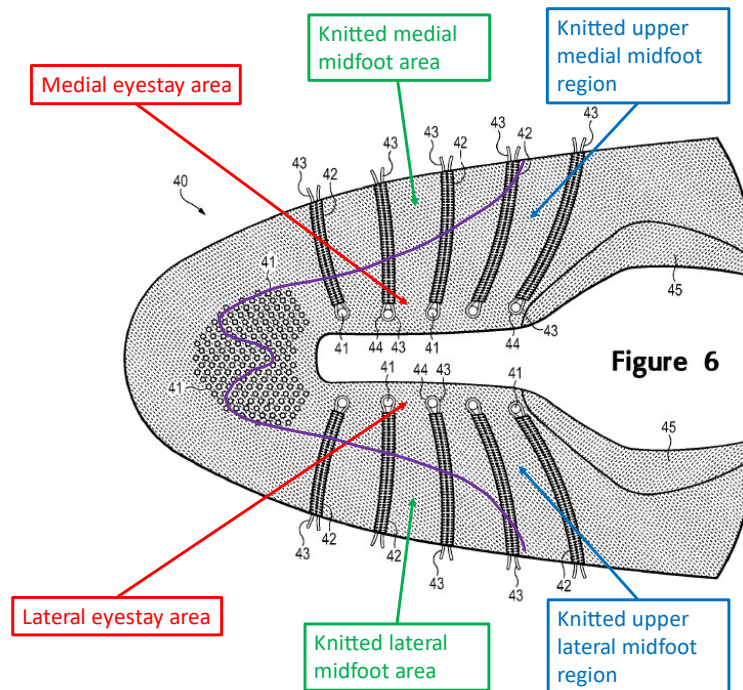
For example, **Dua** discloses that “a last may be placed within the upper to provide support when the various areas are being fused” (*i.e.*, heated). '288, 10:28-33. “[H]eating” “yarns that incorporate thermoplastic polymer materials” fuses those yarns to “adjacent yarns.” *Dua*, [0043]; *Adanur* ¶¶216.

- m. [27] A method as set forth in claim 21 wherein the knitted element further includes a knitted lateral eyestay area and a knitted medial eyestay area, the knitted upper lateral midfoot region including a knitted lateral midfoot area, the knitted upper medial midfoot region including a knitted medial midfoot area, and wherein broguing holes forming lines of broguing are between the lateral midfoot area and the lateral eyestay area and between the medial midfoot area and the medial eyestay area, wherein the knitted element is knitted with the broguing holes during the knitting step.**

See [21], [19]. **Dua** discloses the knitted element further includes **a**

knitted lateral eyestay area and a knitted medial eyestay area, the knitted upper lateral midfoot region including a knitted lateral midfoot area, the knitted upper medial midfoot region including a knitted medial midfoot area, and wherein the knitted element is knitted with the broguing holes during the knitting step (e.g., see Fig. 6 below). Dua, Fig. 6. Adanur ¶¶217-218.

Apertures (41 in Fig. 6 below) are formed in the knitted component, which define lateral and medial eyestay areas. Dua, [0043]. Adanur ¶¶219.



Dua, Fig. 6.

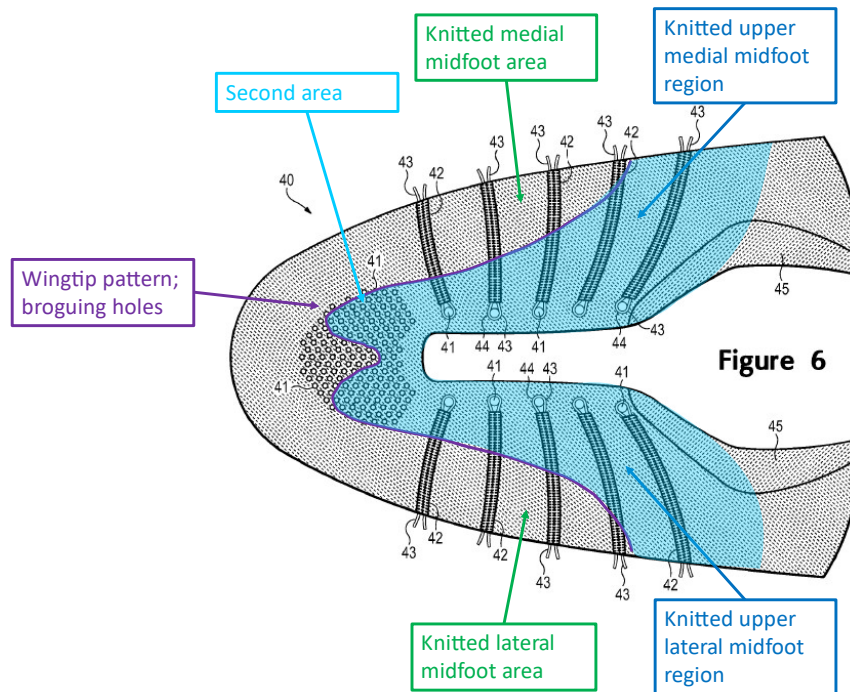
As discussed in [18.a.v], [18.a.vii], and [19]-[20], it would have been obvious to try **a wingtip pattern** including broguing holes forming lines of broguing. The **wingtip pattern** reshapes and extends the upper-toe-region pattern shown in Fig. 6.

The wingtip pattern comprises broguing holes to create the pattern and thus form broguing lines extending from the upper lateral and medial midfoot regions to the upper toe region, such that the broguing holes forming lines of broguing are between the lateral midfoot area and the lateral eyestay area and between the medial midfoot area and the medial eyestay area.¹² Adanur ¶220.

- n. [28] A method as set forth in claim 21 wherein the knitted upper lateral midfoot region includes a knitted lateral midfoot area and the knitted upper medial midfoot region includes a knitted medial midfoot area, and wherein broguing holes forming lines of broguing are between the lateral midfoot area and the second area and between the medial midfoot area and the second area, wherein the knitted element is knitted with the broguing holes during the knitting step.

See [21], [19]. Dua renders obvious the limitation as depicted in annotated Fig. 6 below. Dua, Fig. 6. Adanur ¶221-222.

¹² *Supra* n.5.



Dua, Fig. 6.

As discussed in [18.a.v], [18.a.vii], and [19]-[20], it would have been obvious to try **a wingtip pattern** (Fig. 6 above) including broguing holes forming lines of broguing knitted in during the knitting step.¹³ Adanur ¶223.

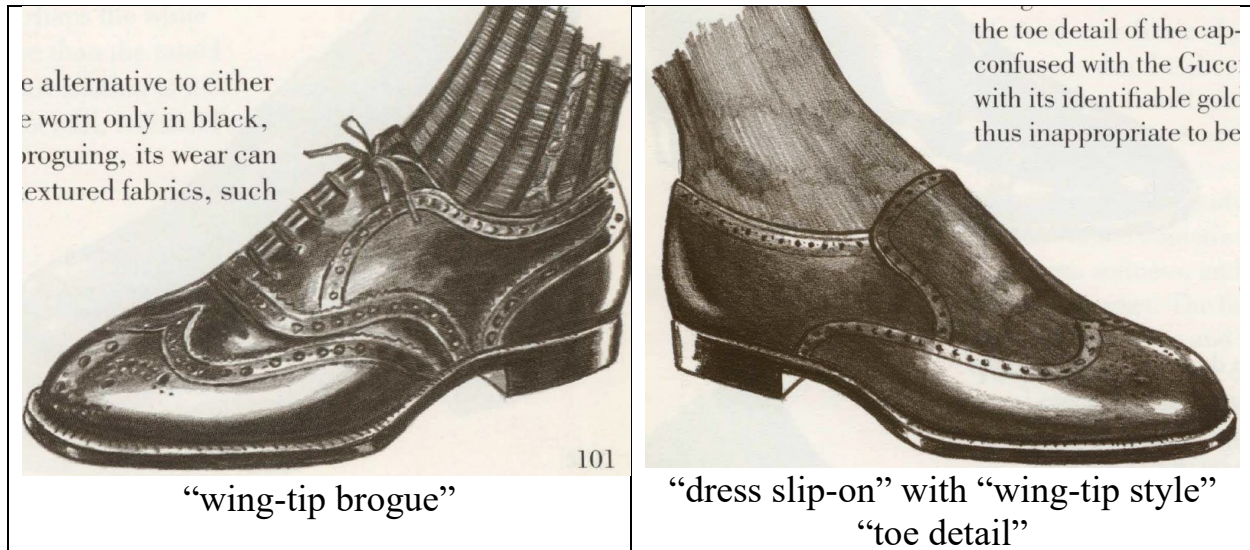
B. Grounds 3-4: Dua in view of Flusser or Dua in view of '762/'288 and Flusser (Claims 1-28)

As explained in §IX.A, **Dua** renders obvious claims 1-28. To the extent further disclosure is required for the claimed “wingtip pattern” (claims 1-20) and/or “broguing” (claims 14-15, 19-20, 22-28), those features are disclosed by **Flusser** and those teachings would have been obvious to apply to **Dua**. Adanur ¶¶224-259.

¹³ *Supra* n.5.

1. Overview of Flusser

Flusser discloses “approximately seven” “shoe styles...appropriate for business wear,” including cap-toe, wing-tip, slip-on/dress loafer, monk-strap, suede, tassel loafer, and summer shoes. Flusser, 101-104.



Flusser, 101-102.

Flusser also discloses various designs that can be applied to dress shoes, including a plain toe, a cap-toe (with or without broguing and/or a “perforated” “medallion”), and wing-tip pattern. Flusser, 101-104. Adanur ¶¶227-228.

2. Motivation to Apply Flusser’s Teachings to Dua

Dua and **Flusser** are analogous art, in the same field as ’163, which includes footwear design, and are reasonably pertinent to purported problems addressed by the named inventors of ’163 involving the improvement of the design of dress shoes. ’163, 1:27-31, 3:25-27, 4:59-62; Dua, [0001]-[0004], [0015]; Flusser, 99-104; Adanur ¶¶229-232.

POSITA would have been motivated to apply **Flusser’s** teachings of a dress shoe with a wingtip pattern including lines of broguing to **Dua’s** patterned knitted upper because doing so would provide a knitted upper for a “dress shoe,” as taught by **Dua**, with one of the well-known styles and designs of dress shoes disclosed in **Flusser**.¹⁴ *Dua*, [0015]; ’762, 7:63-8:5; *Flusser*, 101-104. *Adanur* ¶230.

In addition, POSITA would have been motivated to apply those teachings of **Flusser** to **Dua’s** knitted upper as an obvious design choice. **Dua** expressly contemplates applying its teachings regarding a seamlessly knit, patterned upper to “dress shoes.” *Dua*, [0015]. As disclosed in **Flusser**, there were a finite number of standard, well-known dress shoe styles, including cap-toes, wing-tips, loafers, monk-straps, suedes, tassel loafers, and summer shoes having plain toe, a cap-toe (with or without broguing and/or a “perforated” “medallion”), and wing-tip designs. *Adanur* ¶231. Thus, POSITA would have found it obvious to try the well-known wingtip dress shoe pattern as **Dua’s** seamlessly knit pattern on the upper and would have had a reasonable expectation of success in doing so because applying the wingtip pattern would involve simply applying **Dua’s** teachings regarding creating a seamlessly knit, patterned upper for “dress shoes” to form a wingtip patterned dress

¹⁴ The styles/designs disclosed in **Flusser** remained the same until at least the priority date of ’163. *Ex.1047*, 193-208; *Adanur* ¶232.

shoe. Dua, [0015]; Adanur ¶231. For example, **Dua** discloses forming “complex patterns” by variations in the configuration of knit stitch types and apertures formed by, e.g., omitting “stitch[es] in specific locations” (’762, 5:31-43, 7:63-8:5) in “many areas of the upper” (Dua, [0022]).

Accordingly, POSITA would have had a reasonable expectation of success applying **Flusser’s** teachings to **Dua’s** knit upper, and POSITA would have known that the combination (yielding the claimed limitations) would predictably work and provide the expected results.¹⁵ Adanur ¶232.

3. Claims 18-20

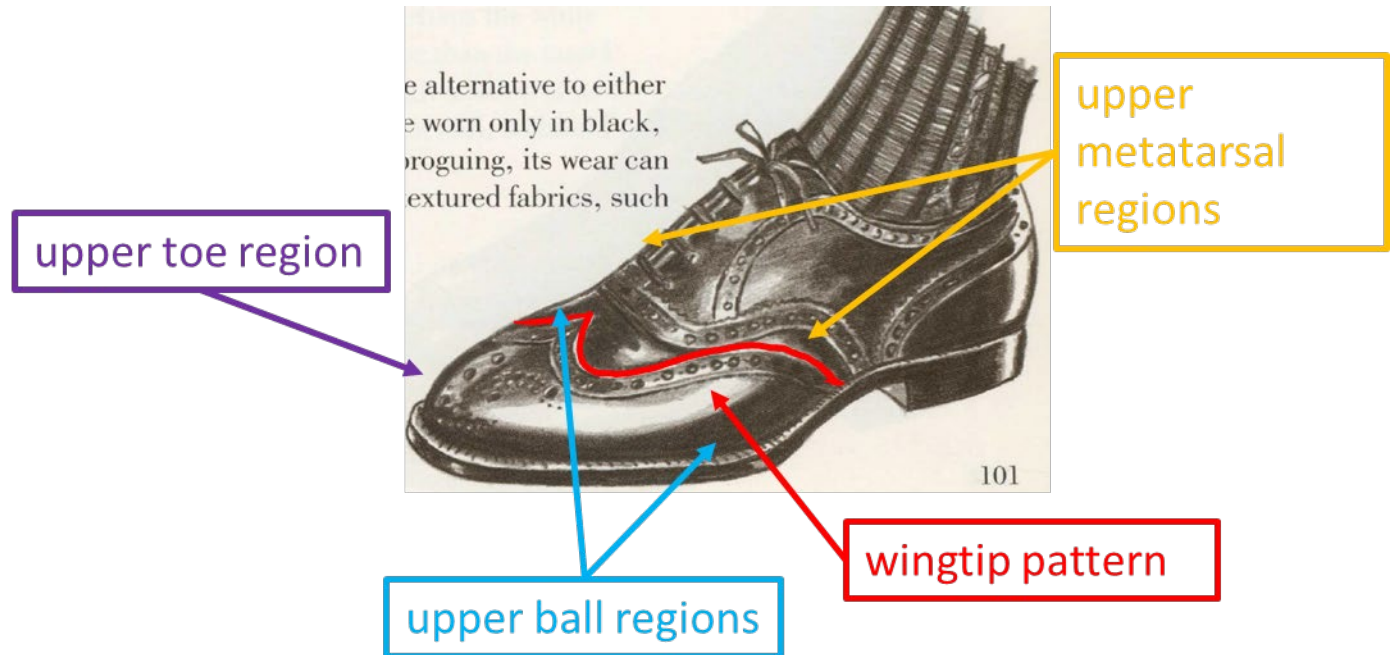
As explained in §IX.A.3, **Dua** renders obvious claims 18-20. To the extent additional disclosure is required for the wingtip, broguing and/or knit pattern limitations, the application of **Flusser’s** teachings to **Dua** renders them obvious. Adanur ¶233.

a. [18.a.v]

Flusser discloses **a wingtip pattern, the wingtip pattern** being portions of at least **the upper toe region, the upper lateral and medial ball regions, and the upper lateral and medial metatarsal regions** (e.g., annotated image below;

¹⁵ See e.g., Litke, 5:29-6:20 (disclosing patterns of holes, including wingtip pattern of Fig. 3, can be applied to shoes with fabric uppers).

wingtip pattern, which includes “decorative perforations along the seams and curved toe cap section”). Flusser, 101-102. Adanur ¶¶234-235.



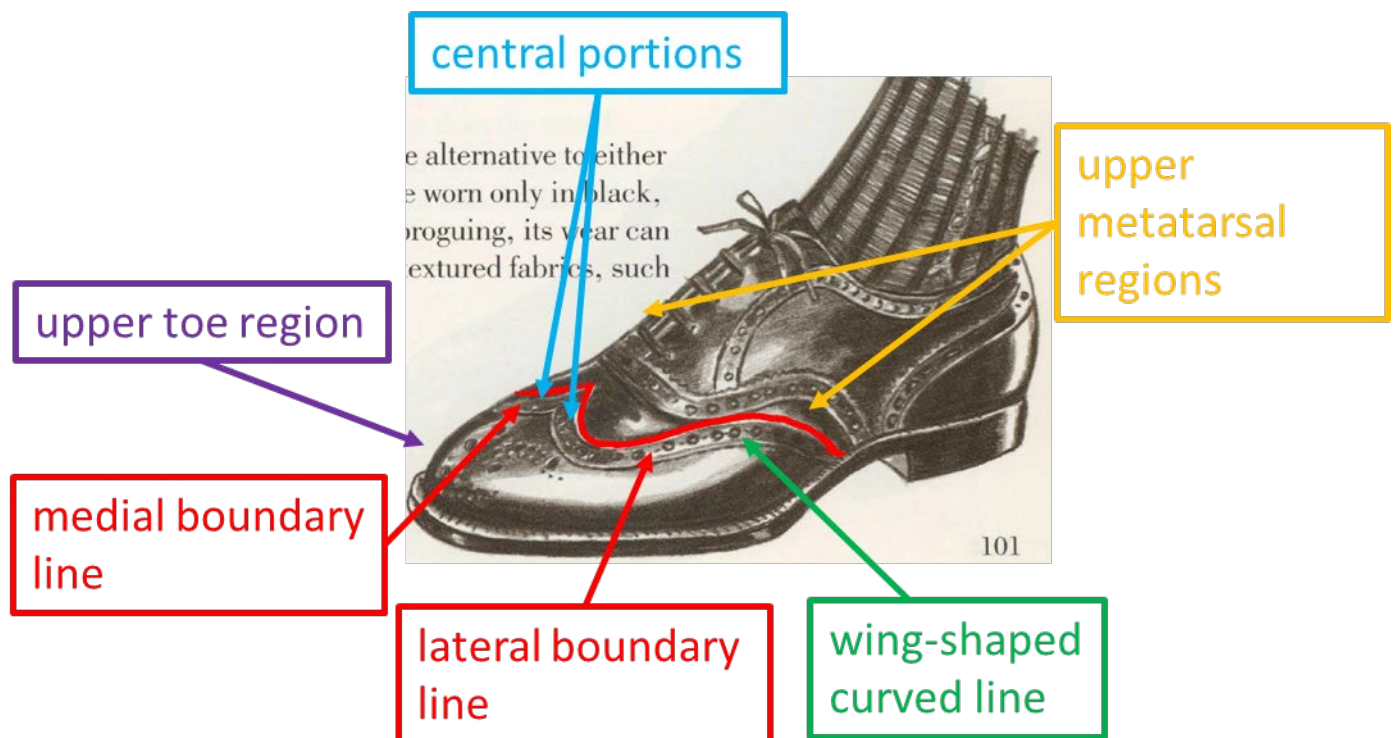
Flusser, 101.

As explained above (§IX.B.2 and [18.a.v](G1-2)), it would have been obvious to try **Flusser’s** well-known wingtip pattern and to apply these teachings to **Dua**; doing so would meet this limitation. Flusser, 101, Dua, [0015]; ’762, 7:63-8:5; Adanur ¶236.

b. [18.a.vii]

Flusser discloses the wingtip pattern comprising **the boundary line, the boundary line having a medial boundary line and a lateral boundary line, the medial boundary line comprising a wing-shaped curved line** having a medial

side portion extending forward from at least the upper medial metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the lateral boundary line comprising a wing-shaped curved line having a lateral side portion extending forward from at least the upper lateral metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the rearwardly extending central portion of the medial boundary line converging toward the rearwardly extending central portion of the lateral boundary line (e.g., annotated image below). Flusser, 101; *see also* [18.a.v]. Adanur ¶¶237-238.



Flusser, 101.

As explained above (§IX.B.2 and [18.a.vii](G1-2)), it would have been

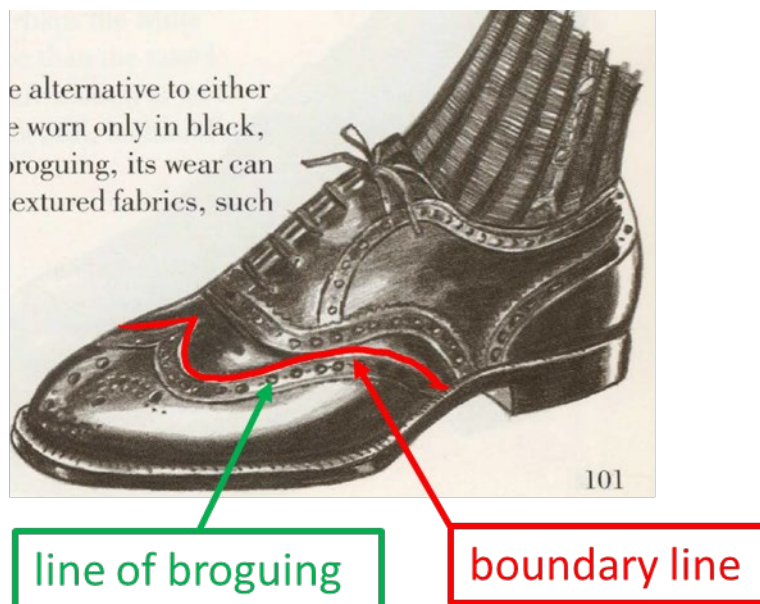
obvious to try **Flusser's** well-known wingtip pattern and to apply these teachings to **Dua**; doing so would meet this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶238.

c. [18.c]

See [18.a.v], [18.a.vii]. As explained above (§IX.B.2 and [18.c](G1-2)), it would have been obvious to try **Flusser's** well-known wingtip pattern and to apply these teachings to **Dua**; doing so would meet this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶239.

d. [19]

See [18.a.v-18.c], [18.a]-[18.c](G1-2). Flusser discloses **a line of broguing** adjacent **the boundary line** (e.g., annotated image below). Flusser, 101. Adanur ¶240.



Flusser, 101.

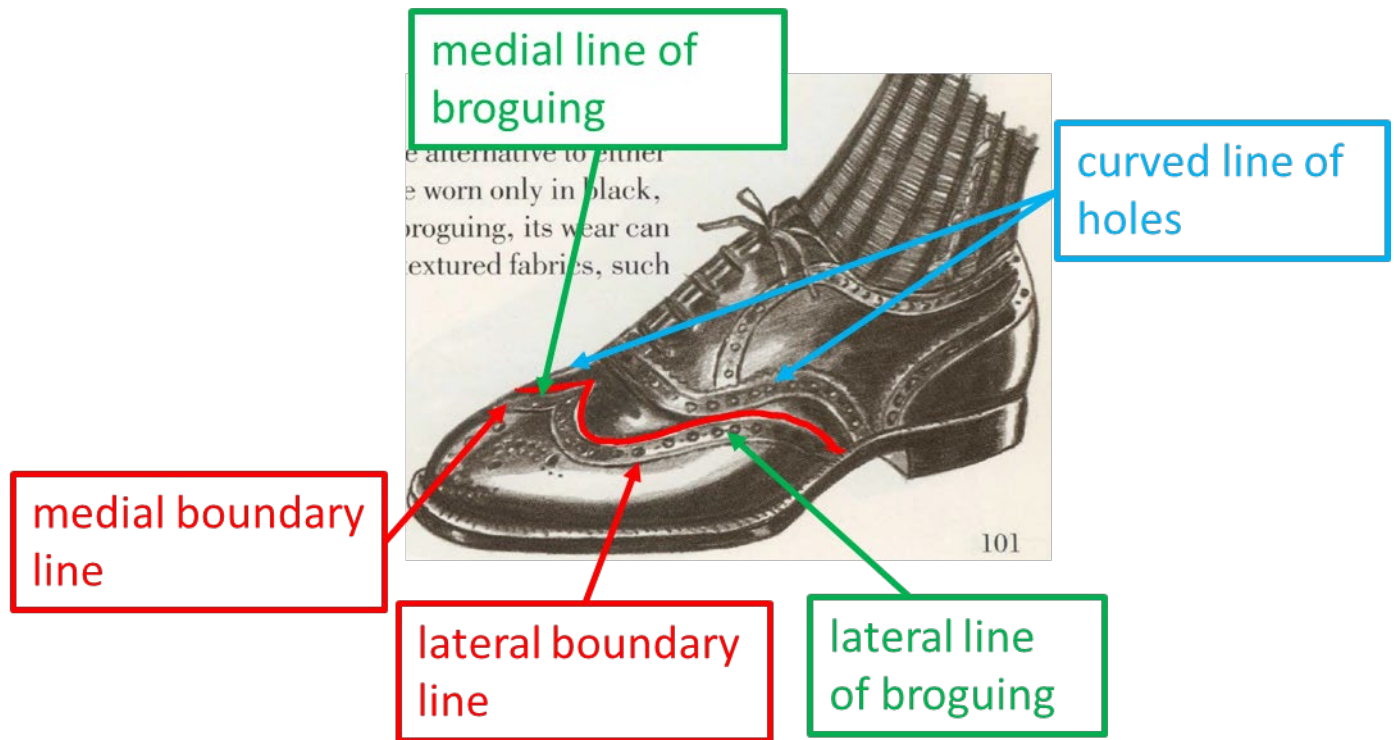
As explained above (§IX.B.2 and [19](G1-2)), **Dua** discloses the knitted element being knitted with the line of broguing (i.e., apertures/holes) during the knitting step, and it would have been obvious to try **Flusser's** well-known wingtip pattern and to apply these teachings to **Dua**; doing so would meet this limitation.

Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶241.

e. [20]

See [18]-[19]. Flusser discloses a **medial line of broguing and a lateral line of broguing, the medial line of broguing being adjacent the medial boundary line, the lateral line of broguing being adjacent the lateral boundary line, the medial line of broguing comprising a curved line of holes, the lateral line of broguing comprising a curved line of holes** (e.g., annotated image below).

Flusser, 101. Adanur ¶242.



Flusser, 101.

As explained above (§IX.B.2 and [20](G1-2)), **Dua** discloses the knitted element being knitted with the medial and lateral lines of broguing (i.e., apertures/holes) during the knitting step, and it would have been obvious to try **Flusser's** well-known wingtip pattern and to apply these teachings to **Dua**; doing so would meet this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶243.

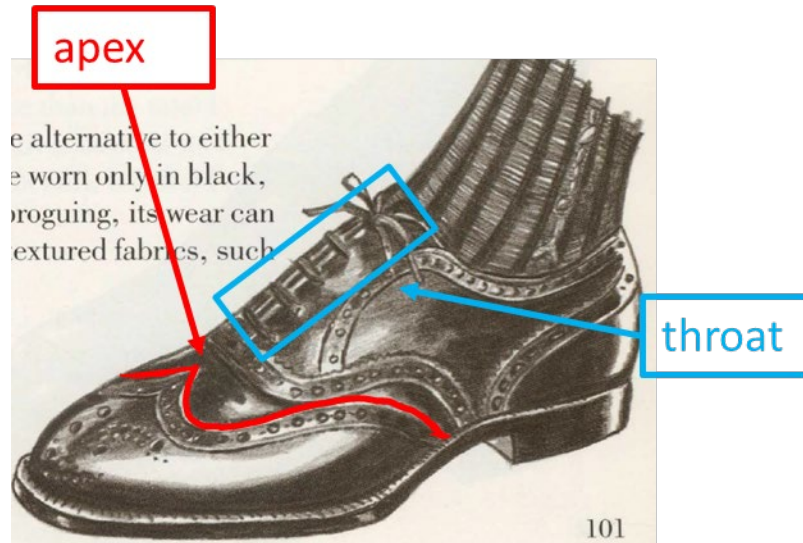
4. Analysis of Related/Remaining Claims

- a. [1.pre-1.c.vii], [3]-[4], [13.pre-13.c.vii], [16]-[17], [21.pre-21.c], [22]-[24]

See §§IX.A.6.a-j (explaining the overlap between these limitations/claims and [18.pre-18.c]-[20] and how they are met). Adanur ¶¶244-247.

b. [2]

See [1], [18.a.vii], [2](G1-2). Flusser discloses the upper further comprises a throat, and wherein the apex points toward the throat (e.g., annotated image below). Flusser, 101. Adanur ¶250.



Flusser, 101.

As explained above (§IX.B.2 and [2](G1-2)), it would have been obvious to try **Flusser's** well-known wingtip pattern and to apply these teachings to **Dua**; doing so would meet this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶251.

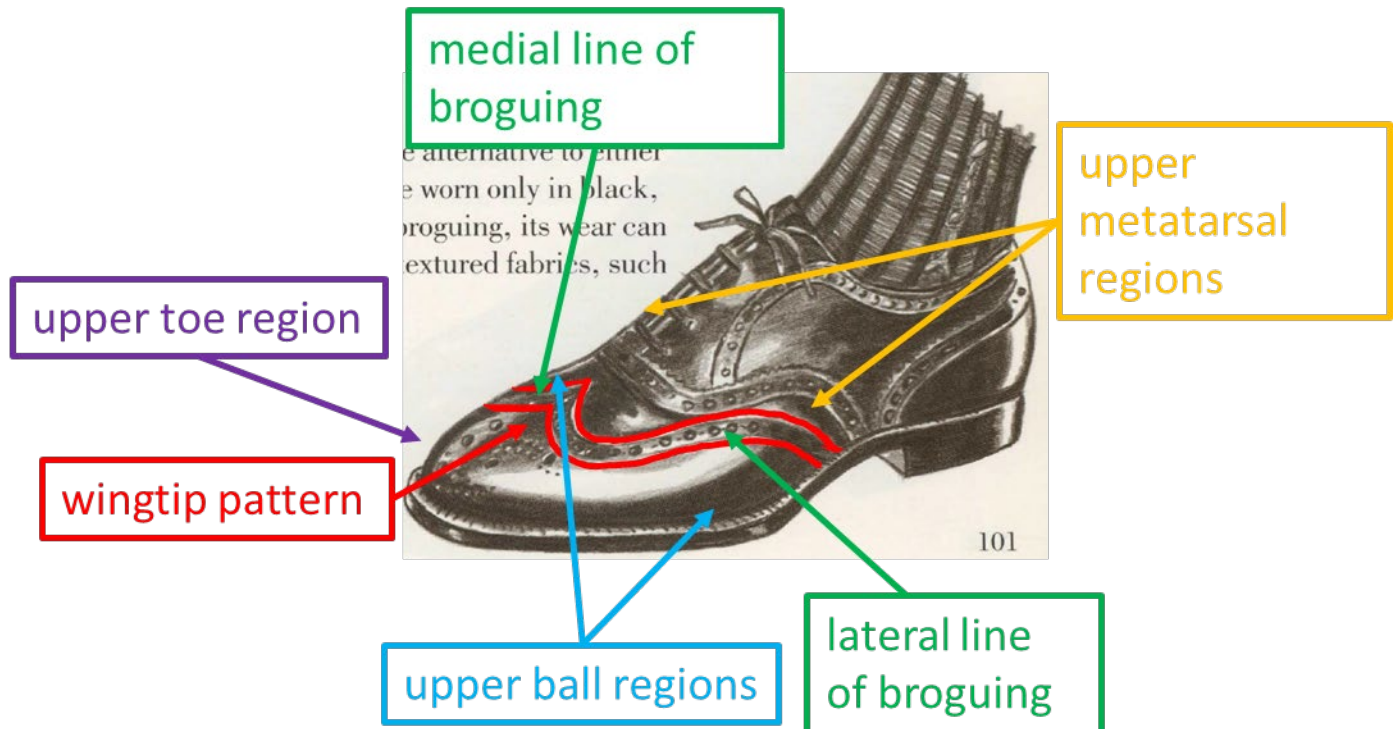
c. [5]-[12]

See [5]-[12](G1-2) (explaining how Dua discloses/renderers obvious). Adanur ¶252.

a. [14]

See [14](G1-2). Flusser discloses **the wingtip pattern** comprises **a medial line of broguing and a lateral line of broguing** (e.g., annotated image below).

Flusser, 101. Adanur ¶248.



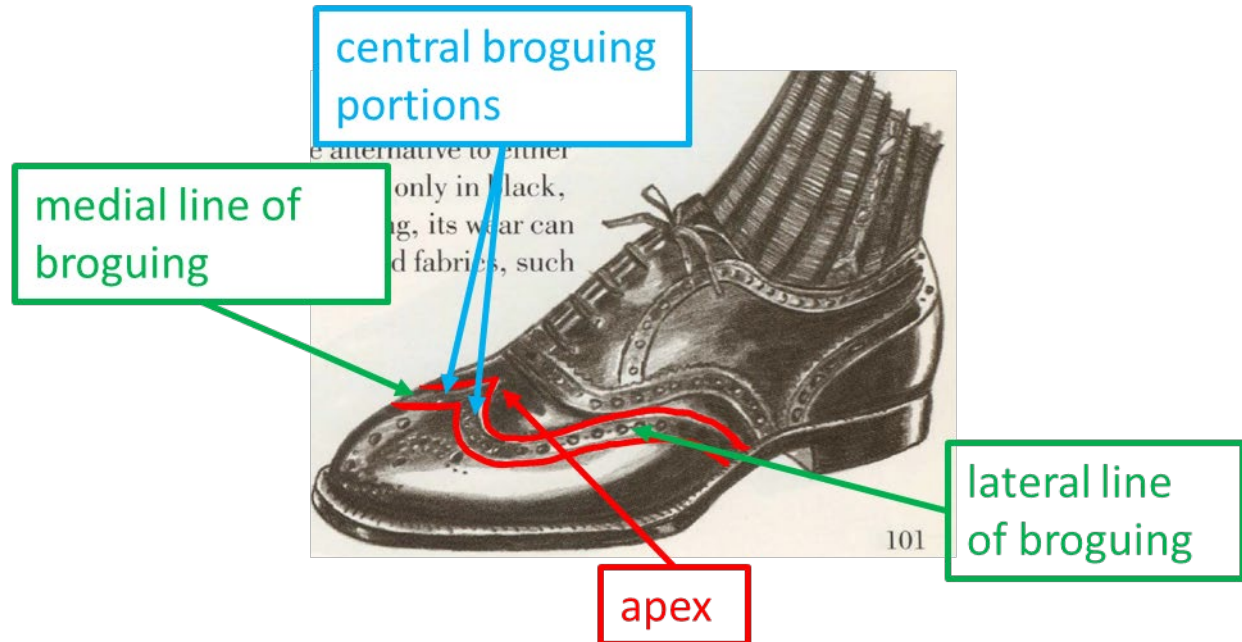
Flusser, 101.

As explained above (§IX.B.2 and [14](G1-2)), it would have been obvious to try **Flusser's** well-known wingtip pattern and to apply these teachings to **Dua**; doing so would meet this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶249.

b. [15]

See [2], [14], [15](G1-2). Flusser discloses the **central broguing portions**

of the medial and lateral lines of broguing meet at a rearwardly pointing apex (e.g., annotated image below). Flusser, 101. Adanur ¶253.



Flusser, 101.

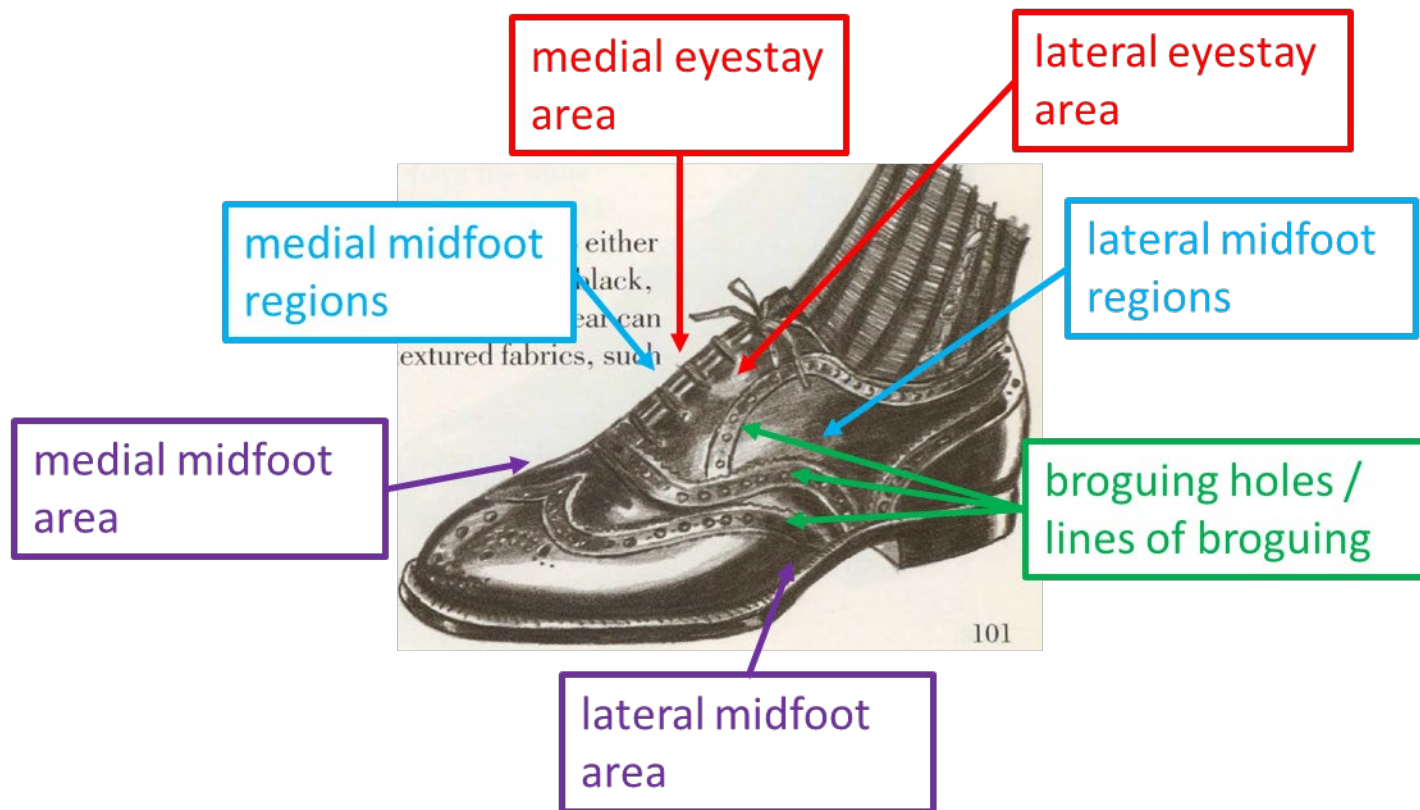
As explained above (§IX.B.2 and [15](G1-2)), it would have been obvious to try **Flusser's** well-known wingtip pattern and to apply these teachings to **Dua**; doing so would meet this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶254.

c. [25]-[26]

See [24], [25]-[26](G1-2) (explaining Dua discloses/renderers obvious claims 25-26 for the reasons set forth in [5](G1-2), [11](G1-2), and [24](G1-2)). Adanur ¶255.

d. [27]

See [21], [19], [27](G1-2). Flusser discloses **a lateral eyestay area** and **a medial eyestay area**, **the upper lateral midfoot region** including **a lateral midfoot area**, **the upper medial midfoot region** including **a medial midfoot area**, and wherein **broguing holes forming lines of broguing** are between the **lateral midfoot area** and **the lateral eyestay area** and between **the medial midfoot area** and **the medial eyestay area** (e.g., annotated image below). Flusser, 101. Adanur ¶256.

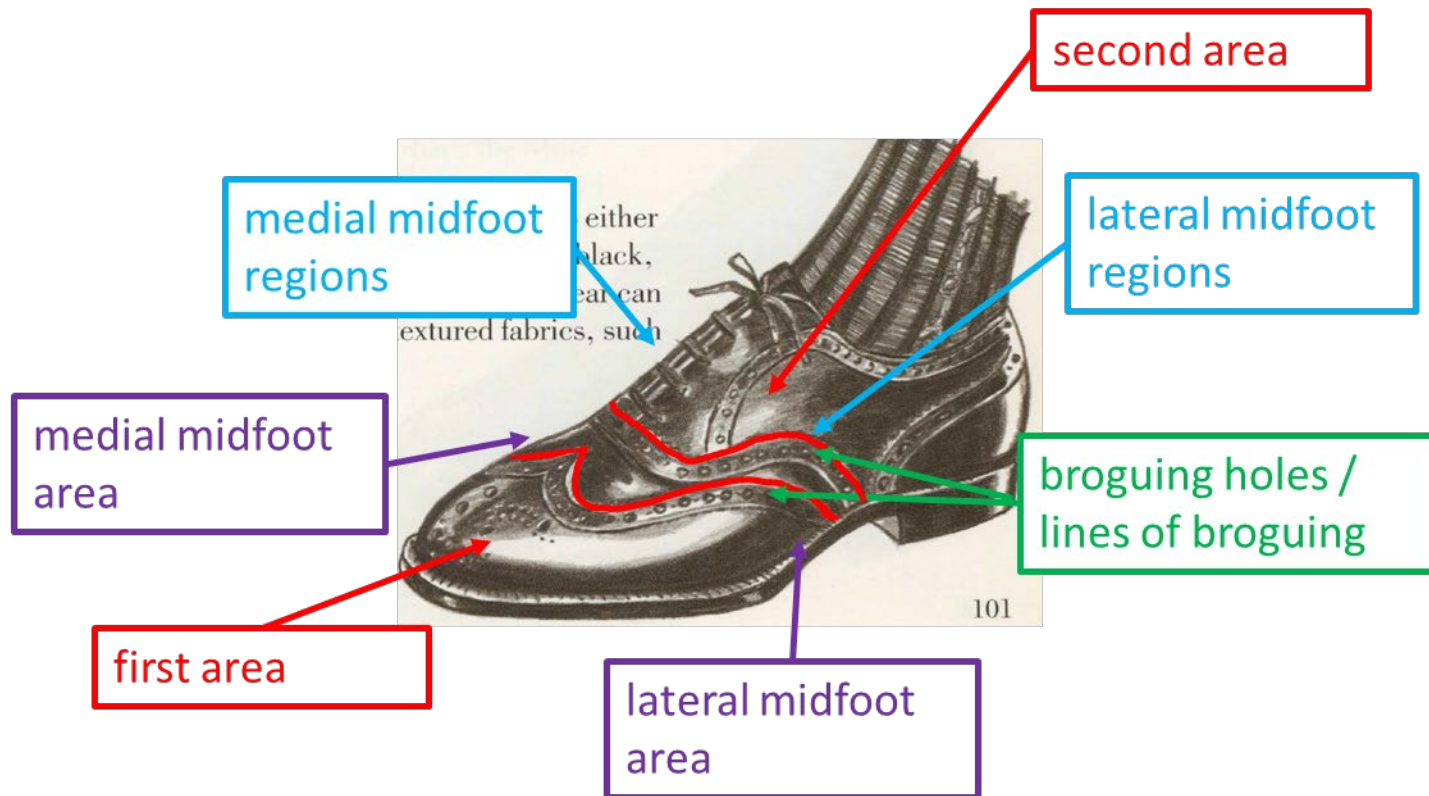


Flusser, 101.

As explained above (§IX.B.2 and [27](G1-2)), **Dua** discloses the claimed regions and areas are knitted and that the knitted element is knitted with the broguing holes during the knitting step, and it would have been obvious to try **Flusser's** well-known wingtip pattern including broguing holes forming lines of broguing and to apply these teachings to **Dua**; doing so would meet this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶257.

e. [28]

See [21], [19], [28](G1-2). Flusser discloses the upper lateral midfoot region includes a lateral midfoot area, the upper medial midfoot region includes a medial midfoot area, and wherein broguing holes forming lines of broguing are between the lateral midfoot area and the second area and between the medial midfoot area and the second area (*e.g.*, annotated images below). Flusser, 101. Adanur ¶258.



Flusser, 101.

As explained above (§IX.B.2 and [28](G1-2)), **Dua** discloses the claimed regions and areas are knitted and that the knitted element is knitted with the broguing holes during the knitting step, and it would have been obvious to try **Flusser's** well-known wingtip pattern including broguing holes forming lines of broguing and to apply these teachings to **Dua**; doing so would meet this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶259.

C. Grounds 5-6: Dua in view of Litke or Dua in view of '762/'288, and Litke (Claims 1-28)

As explained in §§IX.A-IX.B, **Dua** and **Dua** in view of **Flusser** render

obvious claims 1-28. To the extent that further disclosure is required for the claimed “wingtip pattern” (claims 1-20) and/or “broguing” (claims 14-15, 19-20, 22-28), those features are also disclosed by **Litke**, and it would have been obvious to apply its teachings to **Dua** as an alternative to **Flusser**. Adanur ¶¶260-288.

1. Overview of Litke

Litke discloses a computerized customization system for, e.g., footwear. Litke, 2:63-67. The footwear can include an upper 15a and a plurality of patterns, such as a pattern “formed of holes in the upper material” and/or another pattern “formed of stitching” and/or “no pattern.” Litke, 5:7-19, 6:17-20. The footwear can be customized by the shoe type and associated design parameters including upper material and color(s). Litke, 5:29-48. Upper materials may include “woven and non-woven fabrics.” Litke, 5:64-66. Fig. 3 illustrates a wingtip pattern 15i. Adanur ¶261.

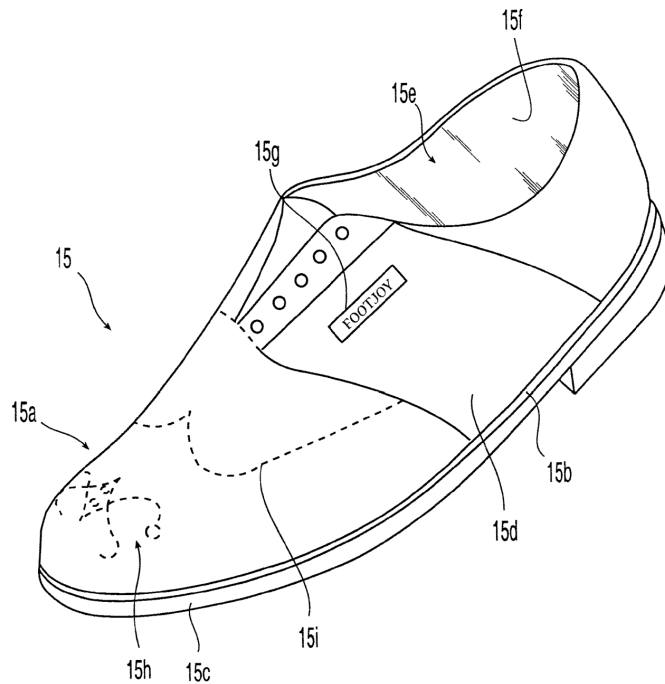


Fig. 3

2. Motivation to Apply Litke's Teachings to Dua

Dua and **Litke** are analogous art, in the same field as '163, which includes footwear, and are reasonably pertinent to purported problems addressed by named inventors of '163 involving the improvement of design and manufacture of knitted uppers for shoes. '163, 1:27-31, 3:25-27, 4:59-62; Dua, [0001]-[0004]; Litke, 2:63-67; Adanur ¶262.

POSITA would have been motivated to apply **Litke's** wingtip pattern 15i (Fig. 3) and lines of broguing/holes teachings to **Dua's** seamlessly knitted, patterned upper because **Dua** expressly contemplates using its knit uppers in dress shoes and including "complex patterns," which includes the well-known wing-tip dress shoe

pattern, and it would achieve the “desired properties” of a well-known design. Dua, [0015], [0040]; ’762, 7:63-8:5; Adanur ¶¶263-264.¹⁶

Accordingly, POSITA would have had a reasonable expectation of success applying **Litke’s** teachings to **Dua’s** knit upper, and POSITA would have known that the combination (yielding the claimed limitations) would predictably work and provide the expected results. Adanur ¶265.

3. Claims 18-20

As explained in §§IX.A-IX.B, both **Dua** and **Dua** in view of **Flusser** render obvious claims 18-20. To the extent additional disclosure is required for certain claims and/or limitations, the application of the teachings from **Litke** (instead of **Flusser**) renders them obvious. Adanur ¶266.

a. [18.a.v]

Litke discloses **a wingtip pattern, the wingtip pattern** being portions of at least **the upper toe region, the upper lateral and medial ball regions, and the upper lateral and medial metatarsal regions** (e.g., Fig. 3 below; pattern “applied or formed on the materials” using “stitching [or] holes”). **Litke**, 6:17-20. Fig. 3. Adanur ¶¶267-268.

¹⁶ See also **Flusser**, 101-104.

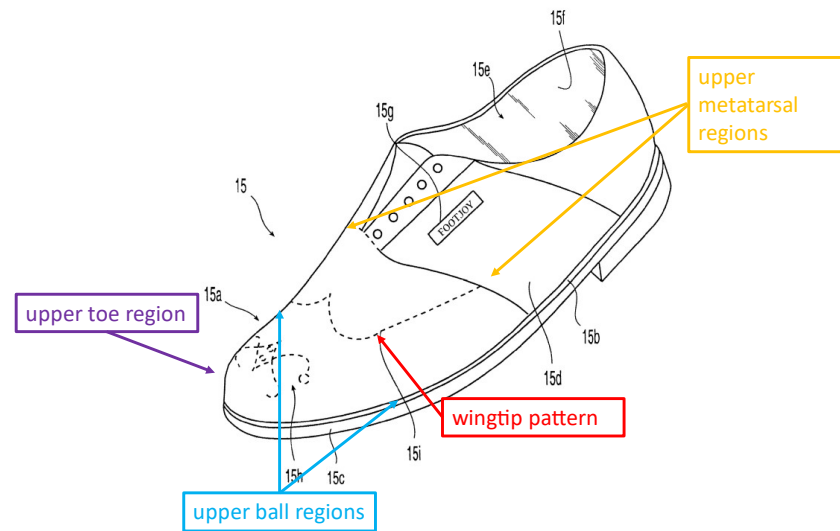


Fig. 3

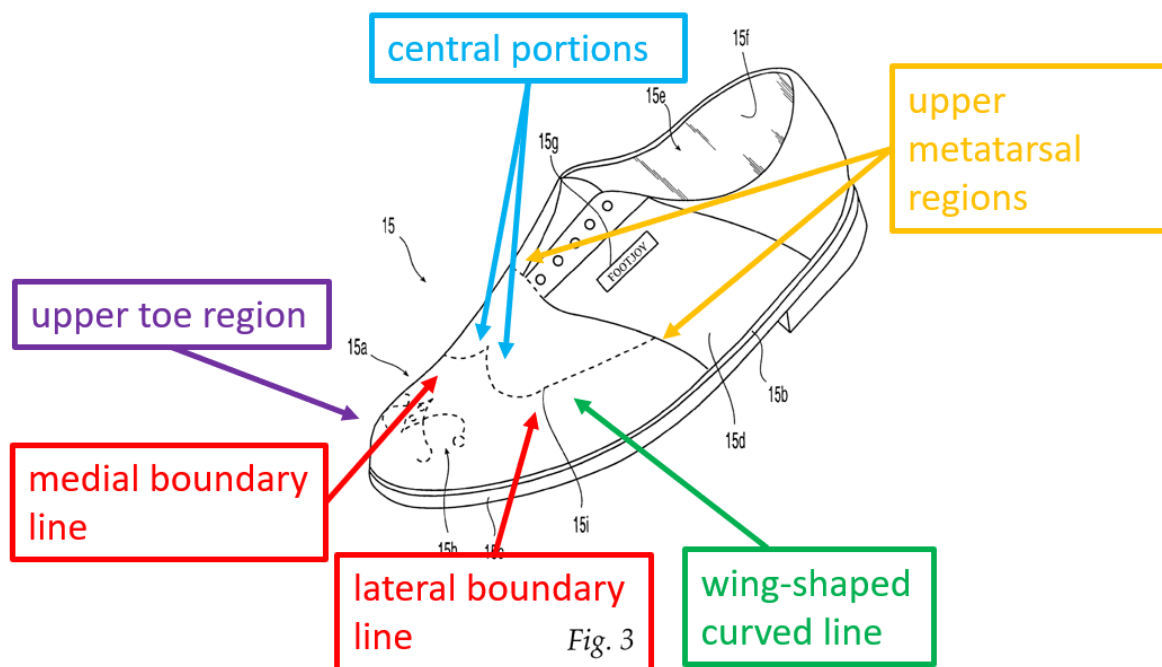
Litke, Fig. 3.

As explained above (§IX.C.2 and [18.a.v](G1-2)), it would have been obvious to apply **Litke's** teachings of a wingtip pattern to **Dua's** patterned knitted upper because doing so would provide a knitted upper for a dress shoe, as taught by **Dua**, with the popular, well-known wingtip design disclosed in **Litke**. Adanur ¶269.

b. [18.a.vii]

Litke discloses the wingtip pattern comprising **the boundary line, the boundary line having a medial boundary line and a lateral boundary line, the medial boundary line comprising a wing-shaped curved line having a medial side portion extending forward from at least the upper medial metatarsal region to the upper toe region and a central portion extending rearward from**

the upper toe region, the lateral boundary line comprising a wing-shaped curved line having a lateral side portion extending forward from at least the upper lateral metatarsal region to the upper toe region and a central portion extending rearward from the upper toe region, the rearwardly extending central portion of the medial boundary line converging toward the rearwardly extending central portion of the lateral boundary line (e.g., Fig. 3 of Litke below); see also [18.a.v]. Adanur ¶270.



Litke, Fig. 3.

As explained above (§IX.C.2 and [18.a.vii](G1-2)), it would have been obvious to POSITA to apply Litke's teachings of a wingtip pattern, as defined by the boundary line, to Dua's patterned knitted upper because doing so would provide

a knitted upper for a dress shoe, as taught by **Dua**, with the popular, well-known wingtip dress shoe design disclosed in **Litke**. Adanur ¶271.

a. [18.c]

See [18.a.v], [18.a.vii]. As explained above (§IX.C.2 and [18.c](G1-2)), it would have been obvious to POSITA to apply **Litke’s** teachings of a wingtip pattern, as defined by the boundary line, to **Dua’s** patterned knitted upper because doing so would have provided a knitted upper for a dress shoe, as taught by **Dua**, with the popular, well-known wingtip dress shoe design disclosed in **Litke**. Adanur ¶272.

b. [19]

See [18]. **Litke** discloses a line of broguing adjacent the boundary line (e.g., annotated Fig. 3 of **Litke** below; pattern “applied or formed on the materials” using “stitching [or] holes”). **Litke**, 6:17-20, Fig. 3. Adanur ¶273.

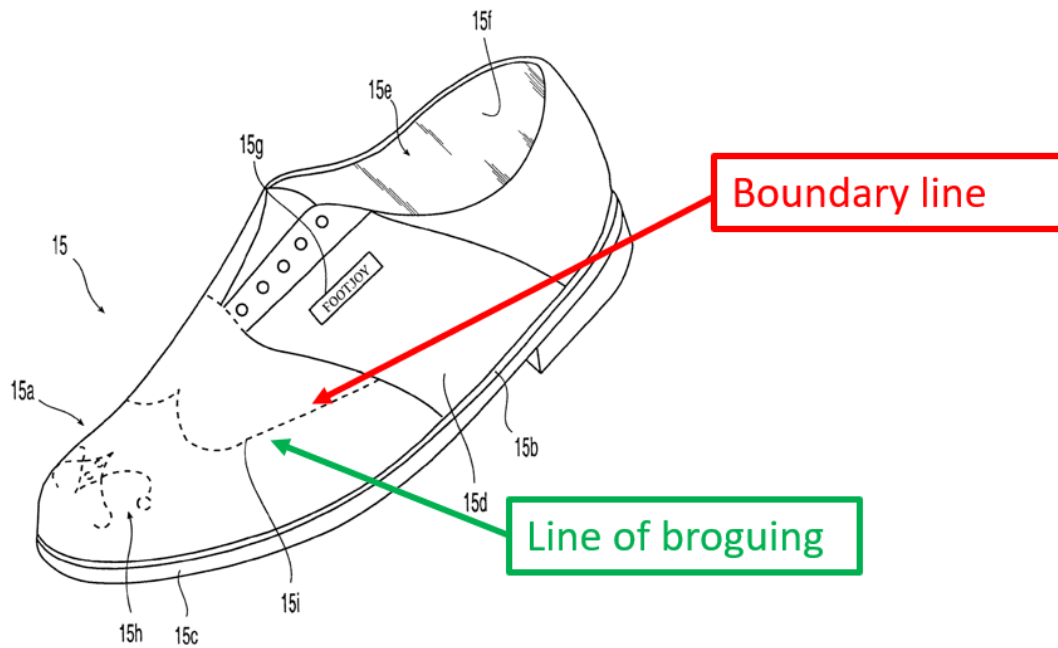


Fig. 3

Litke, Fig. 3.

As explained above (§IX.C.2 and [19](G1-2)), Dua discloses the knitted element being knitted with the line of broguing (i.e., apertures/holes) during the knitting step, and it would have been obvious to POSITA to apply **Litke's** teachings of forming patterns using holes (i.e., lines of broguing) adjacent a boundary line, to **Dua's** patterned knitted upper, modified in view of **Litke** to include a wingtip pattern at a boundary line, because doing so would have provided a knitted upper for a dress shoe, as taught by **Dua**, with the popular, well-known wingtip dress shoe design including lines of broguing disclosed in **Litke**. Dua, [0015]; '762, 7:63-8:5; Litke, 6:17-20; Adanur ¶¶273-275.

c. [20]

See [18]-[19]. Litke discloses a **medial line of broguing** and a **lateral line of broguing**, the **medial line of broguing** being adjacent **the medial boundary line**, the **lateral line of broguing** being adjacent the lateral boundary line, the **medial line of broguing** comprising a **curved line of holes**, the **lateral line of broguing** comprising a **curved line of holes** (e.g., Fig. 3 of Litke below). Adanur ¶276.

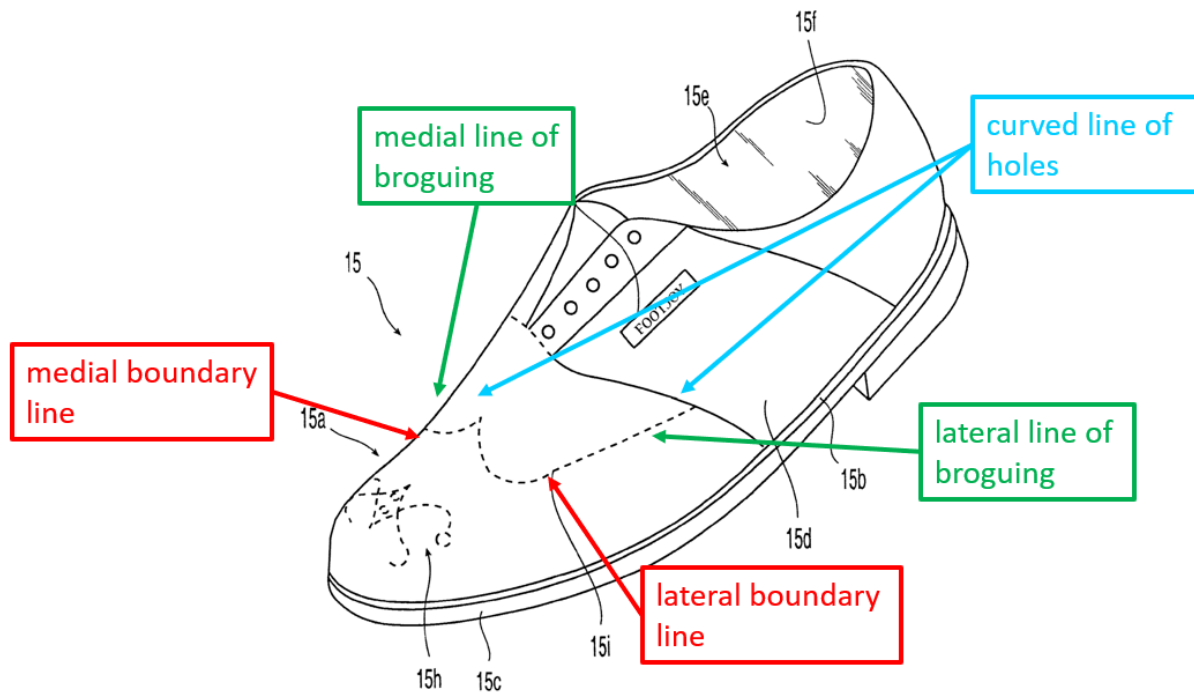


Fig. 3

Litke, Fig. 3.

As explained above (§IX.C.2, [19], and [20](G1-2)), **Dua** discloses the knitted element being knitted with the medial and lateral lines of broguing (i.e.,

apertures/holes) during the knitting step, and it would have been obvious to try **Litke's** well-known wingtip pattern with lines of broguing and to apply these teachings to **Dua**; doing so would meet this limitation. Litke, Fig. 3, Dua, [0015]; '762, 7:63-8:5; Adanur ¶277.

4. Analysis of Related/Remaining Claims

- a. [1.pre-1.c.vii], [3]-[4], [13.pre-13.c.vii], [16]-[17], [21.pre-21.c], [22]-[24]

See §§IX.A.6.a-j (explaining the overlap between these limitations/claims and [18.pre-18.c]-[20] and how they are met). Adanur ¶¶278-279,284.

- a. [2]

See [1], [18.a.vii], [2](G1-2). Litke discloses the upper further comprises **a throat**, and wherein **the apex** points toward **the throat** (*e.g.*, Fig. 3 below). Adanur ¶280.

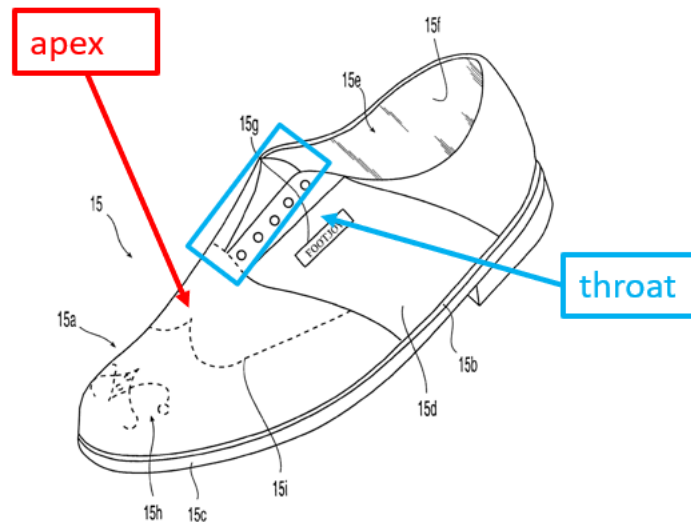


Fig. 3

Litke, Fig. 3.

a. [5]-[12]

See [5]-[12](G1-2) (explaining how Dua discloses/renderers obvious). Adanur ¶281.

b. [14]

See [14](G1-2). [14] is similar to [19] and [20] except this claim recites the “wingtip pattern comprises a medial line of broguing and a lateral line of broguing” having a specified configuration rather than a line of broguing that is adjacent the boundary line with the same specified configuration. **Litke discloses the wingtip pattern comprises a medial line of broguing and a lateral line of broguing** (e.g., Fig. 3 below). Adanur ¶282.

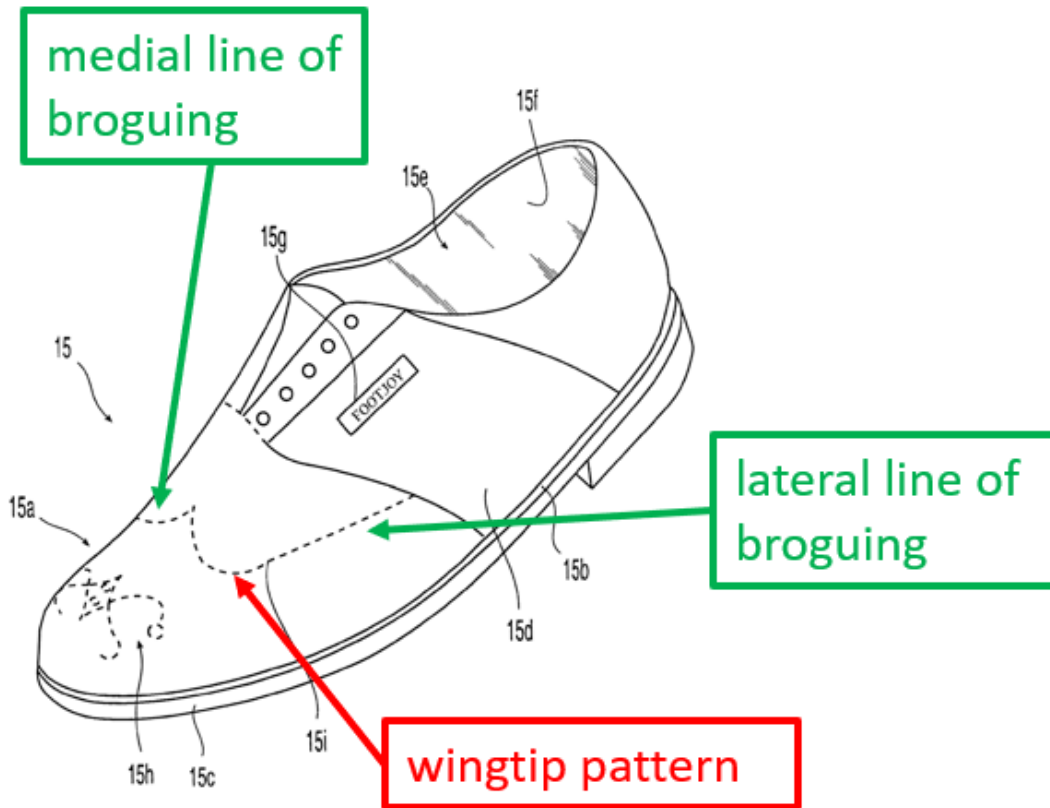


Fig. 3

Litke, Fig. 3.

c. [15]

See [2], [14], [15](G1-2). Litke discloses the **central brogueing portions** of **the medial and lateral lines of brogueing** meet at **a rearwardly pointing apex** (e.g., Fig. 3 below). Adanur ¶283.

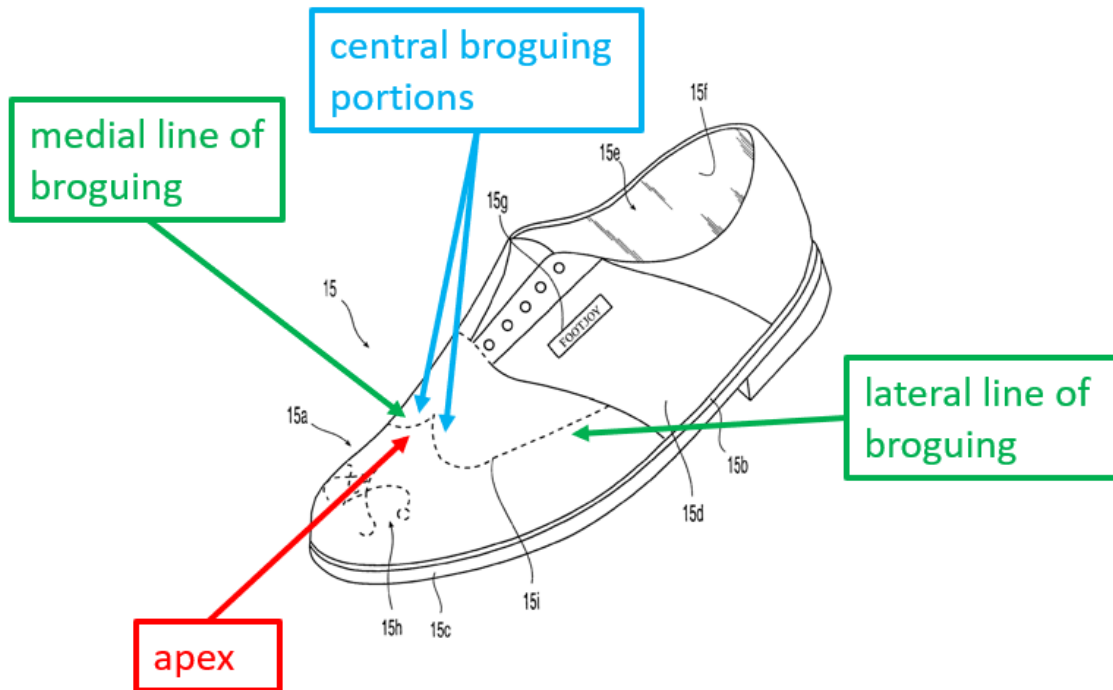


Fig. 3

Litke, Fig. 3.

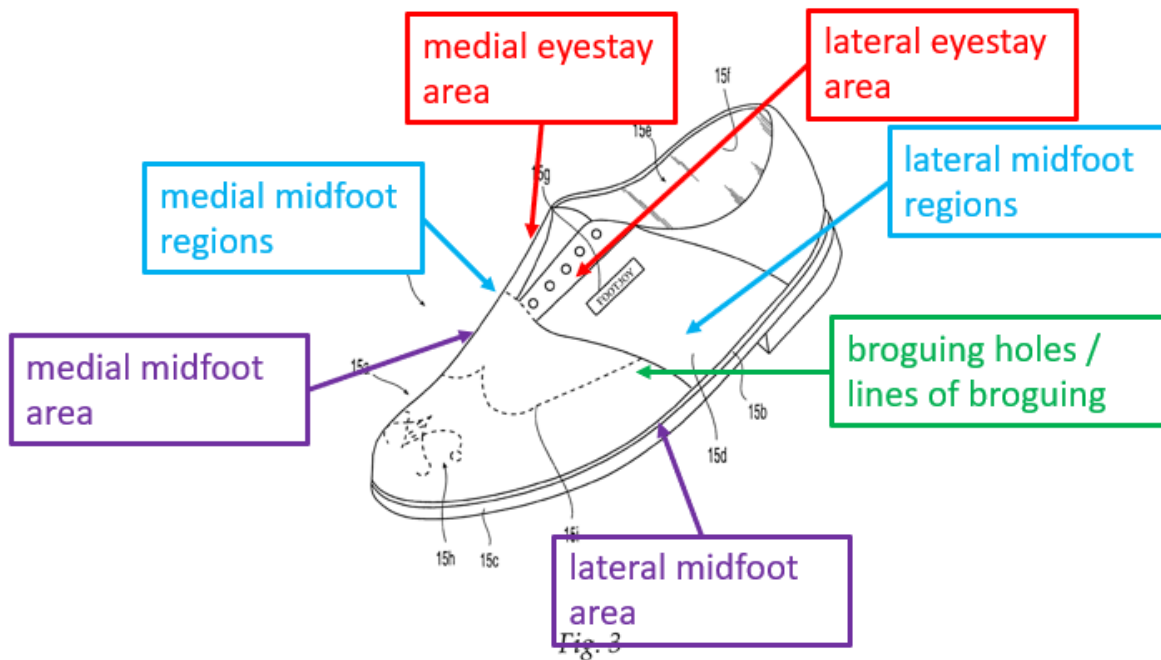
d. [25]-[26]

See [24], [25]-[26](G1-2) (explaining Dua discloses/renderers obvious claims 25-26 for the reasons set forth in [5](G1-2), [11](G1-2), and [24](G1-2)). Adanur ¶284.

e. [27]

See [21], [19], [27](G1-2). Litke discloses **a lateral eyestay area** and **a medial eyestay area**, **the upper lateral midfoot region** including **a lateral midfoot area**, **the upper medial midfoot region** including **a medial midfoot area**,

and wherein broguing holes forming lines of broguing are between the lateral midfoot area and the lateral eyestay area and between the medial midfoot area and the medial eyestay area (e.g., Fig. 3 below). Adanur ¶285.



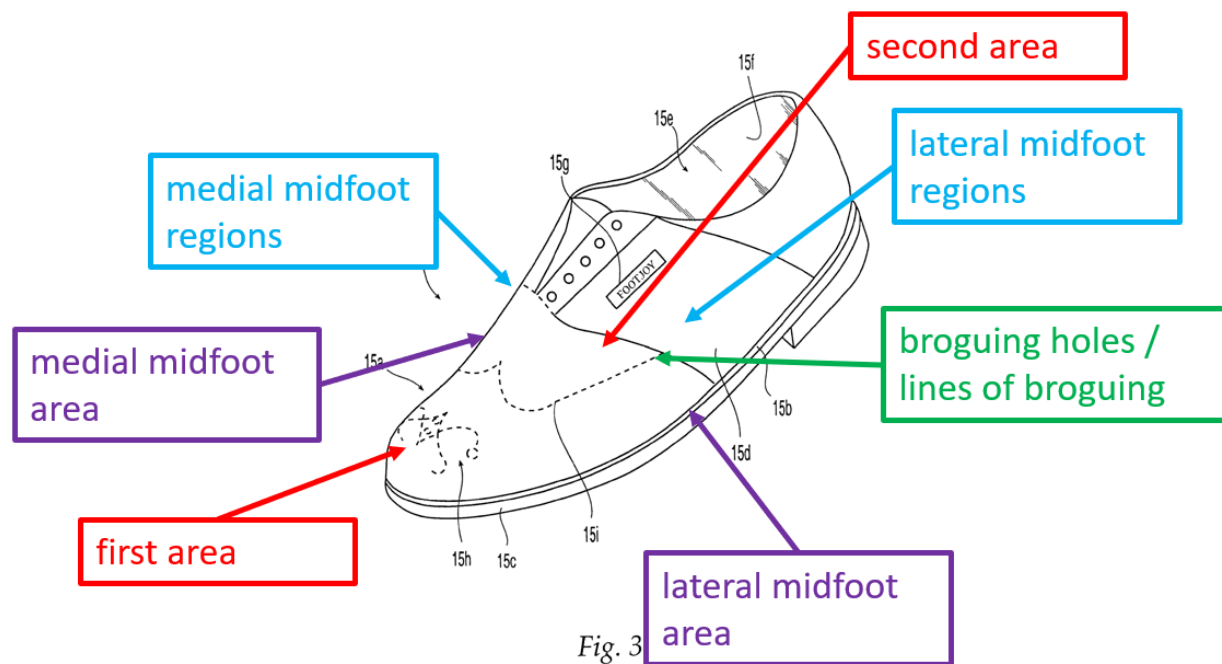
Litke, Fig. 3.

As explained above (§IX.C.2 and [27](G1-2)), **Dua** discloses the claimed regions and areas are knitted and the knitted element is knitted with the broguing holes during the knitting step, and it would have been obvious to POSITA to apply **Litke's** teachings of forming a wingtip pattern using holes (i.e., lines of broguing), to **Dua's** patterned knitted upper because doing so would provide a knitted upper for a dress shoe, as taught by **Dua**, with the well-known wingtip design with lines of

broguing disclosed in **Litke**. Adanur ¶286.

f. [28]

See [21], [19], [28](G1-2). Litke discloses the upper lateral midfoot region includes a lateral midfoot area, the upper medial midfoot region includes a medial midfoot area, and wherein broguing holes forming lines of broguing are between the lateral midfoot area and the second area and between the medial midfoot area and the second area (e.g., Litke Fig. 3 below). Adanur ¶287.



Litke, Fig. 3.

As explained above (§IX.C.2 and [28](G1-2)), Dua discloses the claimed regions and areas are knitted and the knitted element is knitted with the broguing

holes during the knitting step; it would have been obvious to POSITA to apply **Litke's** teachings of forming a wingtip pattern using holes (i.e., lines of broguing), to **Dua's** patterned knitted upper because doing so would provide a knitted upper for a dress shoe, as taught by **Dua**, with a well-known wingtip design with lines of broguing disclosed in **Litke**. Adanur ¶288.

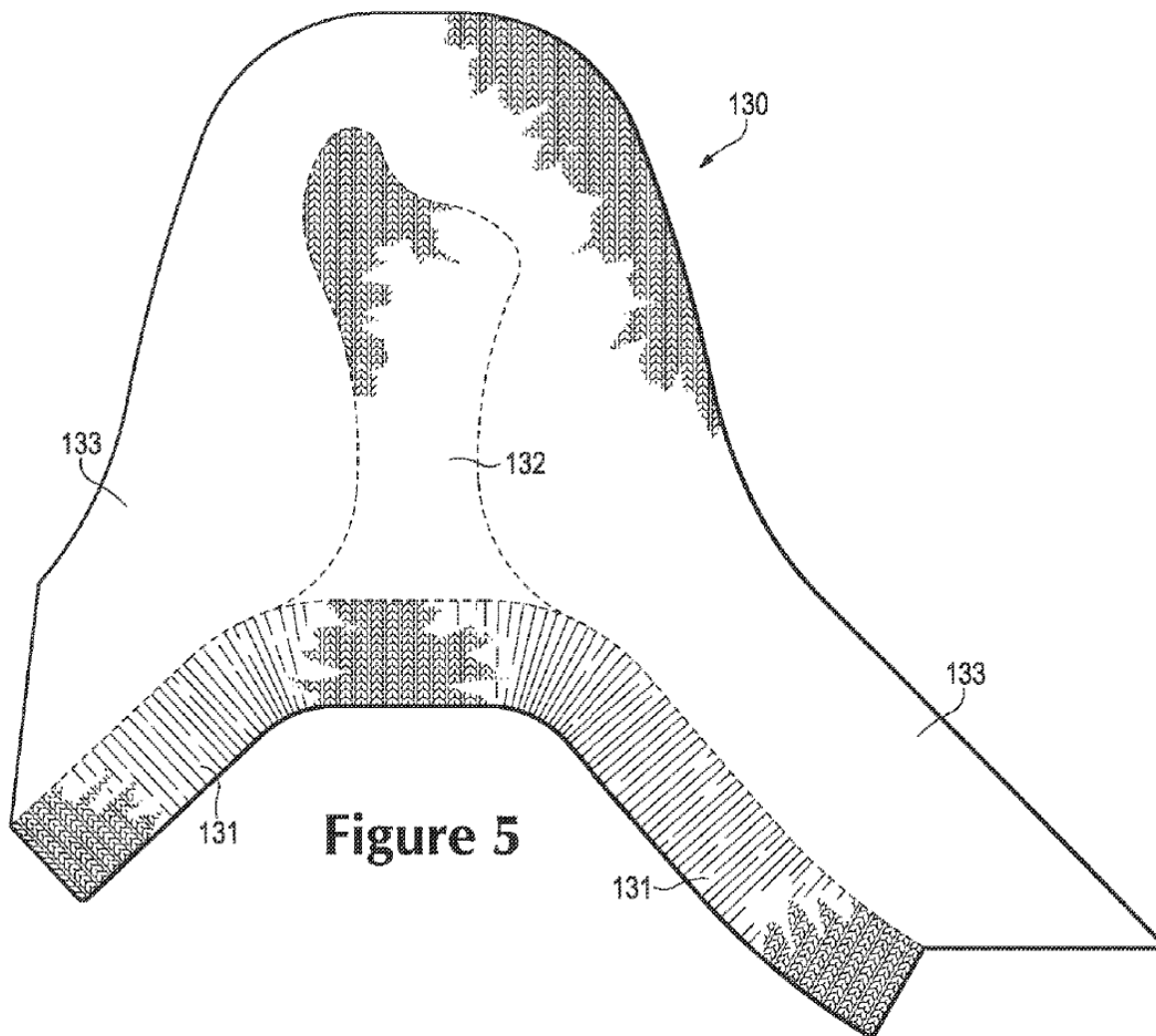
D. Grounds 7-8: Dua in view of Podhajny or Dua in view of '762/'288, Litke, and Podhajny (Claims 5-9)

As explained in §§IX.A, IX.C, **Dua** and **Dua** in view of **Litke** renders obvious claims 5-9. To the extent additional disclosure is required, the application of **Podhajny's** teachings to **Dua** (as optionally modified by **Litke**) renders Claims 5-9 obvious. Adanur ¶289.

1. Overview of Podhajny

Podhajny discloses an article of footwear, such as “dress shoes,” having “an upper with a knitted component.” **Podhajny**, Abstract, [0023]. The knitted upper includes a first/collar region 131, second/central region 132, and third/peripheral region 133, formed of unitary knit construction. **Podhajny**, [0033], Fig. 5. The collar region is knitted with first yarn, which may be “210 denier elastane (e.g., spandex) covered with two ends of 150 denier polyester yarn,” and second yarn, which may be “two ends of 150 denier texturized polyester yarn.” **Podhajny**, [0035]. The central region is knitted with the first yarn. **Podhajny**, [0037]. The peripheral region is knitted with the first yarn and a third yarn including “two ends of 20 denier

elastane covered with 150 denier texturized polyester and a fusible or thermoplastic polymer material.” Podhajny, [0039]; Adanur ¶290.



Podhajny, Fig. 5.

2. Motivation to Apply Podhajny’s Teachings to Dua

Dua and **Podhajny** are analogous art, in the same field as ’163, which includes footwear, and are reasonably pertinent to purported problems addressed by

the named inventors of '163 involving the improvement of design and manufacture of knitted uppers for shoes. '163, 1:27-31, 3:25-27, 4:59-62; Dua, [0001]-[0004]; Podhajny, [0005]; Adanur ¶291.

POSITA would have been motivated to apply **Podhajny's** teachings of a unitary knit upper having a collar region formed from a first yarn including a "210 denier elastane (e.g., spandex) covered with two ends of 150 denier polyester yarn" and a second yarn including "two ends of 150 denier texturized polyester yarn" (Podhajny, [0033], [0035]), to **Dua's** collar on its seamlessly knitted, unitary upper because doing so would provide stretch and durability to the collar (Dua, [0023]) and make the shoe easier to put on (Podhajny, [0034]). Adanur ¶292. Indeed, **Dua** expressly contemplates "incorporat[ing] various yarn types that impart different properties to separate areas of the upper," and recognizes the yarn may include multifilament yarn including "two or more different materials," e.g., "elastane" and "polyester"—like the first yarn taught in **Podhajny**—and a multifilament yarn, e.g., including "stretch polyester"—like the second yarn taught in **Podhajny**.¹⁷ Dua, [0023]; Adanur ¶292. Thus, the teachings of **Podhajny's** second yarn would be applied to **Dua's** stretch yarn. Dua, [0023]; '762, 8:43-59. Adanur ¶292.

¹⁷ Texturized polyester includes stretch polyester. *See, e.g.,* Ex.1019, 1016; Ex.1020, 588.

POSITA would have been motivated to apply **Podhajny's** teachings of a unitary knit upper having a peripheral region formed from the first and third yarn including "two ends of 20 denier elastane covered with 150 denier texturized polyester and a...thermoplastic polymer material" (Podhajny, [0033], [0039]) in regions outside the collar and throat/tongue area to **Dua's** seamlessly knitted, unitary upper in areas outside of the collar and throat/tongue area because, as taught in **Dua**, using the first yarn would provide an elastic but durable knit fabric, and using the third yarn permits areas to be fused to impart greater stiffness and/or decreased permeability in areas like the forefoot and heel, and to reinforce areas around apertures. *Dua*, [0023], [0043]; Adanur ¶293. Indeed, as explained above, **Dua** expressly contemplates using yarns like the first yarn taught in **Podhajny** and "yarns that incorporate thermoplastic polymer materials" like the third yarn taught in **Podhajny**. *Dua*, [0023], [0043]; Adanur ¶293.

Accordingly, POSITA would have had a reasonable expectation of success applying **Podhajny's** teachings to **Dua's** knit upper (as optionally modified by Litke's teachings), and POSITA would have known that the combination (yielding the claimed limitations) would predictably work and provide the expected results. Adanur ¶294.

3. Claims 5-9

As explained in §IX.D.2, [5]-[9](G1-2), and [5]-[9](G5-6), it would have been

obvious to POSITA to apply **Podhajny's** teachings of a knit upper formed of unitary knit construction using covered spandex yarn, stretch yarn, and hot melt yarn (as further discussed below), to **Dua's** seamlessly knitted, unitary upper (as optionally modified by Litke) because doing so would provide certain advantageous properties like elasticity, durability, and ability to fuse certain areas to stiffen and/or decrease permeability in those areas, as taught in **Dua**. Dua, [0023], [0043]; Podhajny, [0035], [0039]; Adanur ¶¶295-310.

a. [5]

See [5](G1-2), [5](G5-6). **Dua in view of Podhajny renders obvious the knitted element comprises covered spandex yarn** (*e.g.*, a first yarn including a “210 denier elastane (*e.g.*, spandex) covered with two ends of 150 denier polyester yarn”) **and hot melt yarn** (*e.g.*, a third yarn including “two ends of 20 denier elastane covered with 150 denier texturized polyester and a fusible or thermoplastic polymer material”), **the hot melt yarn being knitted with the covered spandex yarn during the knitting process** (*e.g.*, forming an upper using a “unitary knit construction” and including various types of yarn in different regions). Podhajny, [0033], [0035], [0039]. Applying these teachings to Dua would result in the hot melt yarn and covered spandex yarn being knitted with one another for the reasons discussed in [5](G1-2). Adanur ¶¶295-297.

b. [6]

See [5], [6](G1-2), [6](G5-6). **Dua in view of Podhajny renders obvious the hot melt yarns constitute at least 15% by mass of the knitted element** (*e.g.*, a third yarn including “a fusible or thermoplastic polymer material” for all regions other than the central and collar region). Dua, [0043]; Podhajny, [0033]-[0039]. Adanur ¶298.

For example, **Podhajny** teaches using the first yarn (covered spandex yarn) in the main part of the upper and the shoe collar, the second yarn (stretch yarn) in the shoe collar, and the third yarn (hot melt yarn) in the main part of the upper. Podhajny, [0035]-[0039]. The first yarn is disclosed as having 510 denier and the second yarn disclosed as having 300 denier. Podhajny, [0035]; Adanur ¶¶299-302. The third yarn does not have a specified denier for the thermoplastic polymer filament, but POSITA would have understood (and at least found it obvious for) the total denier to be between about 200-300 denier such that the yarns are about the same thickness, and which is also consistent with the general denier of hot melt yarns.¹⁸ Podhajny, [0039]; Adanur ¶¶299-302.

Thus, given that these deniers also correspond to mass of the knitted element,

¹⁸ *See, e.g.*, Blakely, [0092] (disclosing hot melt yarn having denier between 33-300).

covered spandex yarn is at least 50% by mass of the knitted upper (including both the main and the collar) as it is used in both when **Podhajny's** teachings are applied to **Dua** and generally has a higher denier. Adanur ¶303. The hot melt yarn is at least 15% by mass of the knitted upper when **Podhajny's** teachings are applied to **Dua** as hot melt yarn is used in the main, and regardless of its precise denier and the ratio of main to collar, the main will be significantly larger than collar and thus more of the hot melt yarn will be used than stretch yarn (which is only used in the collar). And the stretch yarn, which has a 300 denier, will constitute at least 5% by weight of the upper when **Podhajny's** teachings are applied to **Dua** regardless of the precise ratio of the size of the collar relative to the main (e.g., 5-20%). For example, even assuming a small collar of 10% the size of the upper, and a high denier of 300 for the hot melt yarn, the stretch yarn would still constitute at least 5% by weight of the upper. Adanur ¶303.

At minimum, it would have been obvious to use ratios in these broad claimed ranges given **Podhajny's** broad teachings that a variety of different yarn sizes and ratios can be used. Podhajny, [0032]-[0033]. In addition, '163 does not treat any of these ranges as "critical" and thus the broad overlapping disclosures of **Podhajny** satisfy the limitations for claims 6-9. Adanur ¶304.

c. [7]

See [6], [7](G1-2), [7](G5-6). **Dua in view of Podhajny renders obvious**

the covered spandex yarn constitute at least 50% by mass of the knitted element (e.g., a first covered spandex yarn used in main and collar regions of the knitted upper). Dua, [0043]; Podhajny, [0033]-[0039]. *See* [6]. Adanur ¶305-306.

d. [8]

See [7], [8](G1-2), [8](G5-6). Podhajny discloses the covered spandex yarn comprises polyester covered spandex yarn (e.g., a first yarn including a “210 denier elastane (e.g., spandex) covered with two ends of 150 denier polyester yarn”). Podhajny, [0035]. *See* [6]. Adanur ¶¶307-308.

e. [9]

See [8], [9](G1-2), [9](G5-6). Dua in view of Podhajny discloses the knitted element further comprises stretch yarn (e.g., a second yarn includes “two ends of 150 denier texturized polyester yarn”), the stretch yarn constituting at least 5% by mass of the knitted element (e.g., using the texturized yarn in the collar). Dua, [0043]; Podhajny, [0033]-[0039]. *See* [6]. Adanur ¶¶309-310.

E. Grounds 9-10: Dua in view of Blakely or Dua in view of '762/'288, Litke, and Blakely (Claim 10)

As explained in §§IX.A, IX.C, **Dua** and **Dua** in view of **Litke** renders obvious claim 10. To the extent additional disclosure is required for certain claims and/or limitations, the application of the teachings from **Blakely** renders claim 10 obvious. Adanur ¶311.

See [10](G1-2), [10](G5-6). Blakely discloses the covered spandex yarn

has a linear density of between about 120 denier and about 180 denier (*e.g.*, yarn comprised of “spandex or another material comprising elastane fibers” with linear density “between 50 and 150 denier”), **and wherein the hot melt yarn has a linear density of between about 80 denier and about 120 denier** (*e.g.*, yarn such as TPU with linear density between “100 and 300 denier” or “33 to 100 denier”). Blakely, [0092]. Adanur ¶312.

Blakely discloses knitted fabric for use in apparel/footwear, that includes a first, second, and third yarn. Blakely, [0043], [0082], [0092]. The first and second yarns may comprise “thermoplastic polyurethane (TPU)” and the third “is comprised of an elastomer material such as spandex or another material comprising elastane fibers.” Blakely, [0092]. The first yarn has linear density between 100-300 denier, the second between 33-100 denier, and the third between 50-150 denier. Blakely, [0092]. Adanur ¶313.

Dua and **Blakely** are analogous art, in the same field as ’163, which includes footwear design, and are reasonably pertinent to purported problems addressed by the named inventors of ’163 involving knitted fabrics for shoe uppers. ’163, 1:27-31, 3:25-27, 4:59-62; Dua, [0001]-[0004], [0015]; Blakely, [0043], [0082], [0092]; Adanur ¶314.

POSITA would have been motivated to apply **Blakely’s** teachings of yarns including spandex/elastane fibers (*e.g.*, covered spandex yarn), having linear density

between 50-150 denier, and another yarn such as a thermoplastic polyurethane (i.e., hot melt yarn) having a linear density between “100 and 300 denier” or “33 to 100 denier”, to the covered spandex yarn and hot melt yarn disclosed in **Dua** (as optionally modified by **Litke’s** teachings), because doing so would have provided an upper with relatively low denier yarns that offer thinner/finer threads for a smoother appearance (as taught by **Blakely**, [0092]), flexibility, and low weight while being capable of being fused in locations containing hot melt yarn to provide increased stiffness and wear-resistance in desired locations, as taught by **Dua**. **Dua**, [0043]; ’762, 5:45-58, 4:39-56; Adanur ¶315. And POSITA would have had a reasonable expectation of success in doing so because **Dua** explicitly discloses yarns having “different deniers” can be used to alter the “properties of the upper” to achieve desired characteristics. **Dua**, [0023]. Adanur ¶315.

X. SECONDARY CONSIDERATIONS

There is no evidence in ’163’s prosecution or elsewhere supporting secondary considerations, or evidence of nexus to any Claims. *See generally* ’163FH; Adanur, ¶315. As demonstrated by the prior art herein, any purported solutions to problems or unexpected results in ’163 were already well known. Adanur, ¶¶316-318.

XI. CONCLUSION

Substantial, new, and noncumulative technical teachings have been presented for the Claims, which are rendered obvious for the reasons set forth above. Adanur,

¶¶1-324. There is a reasonable likelihood Petitioners will prevail as to each Claim.

IPR of Claims 1-28 is accordingly requested.

Dated: September 3, 2025

Respectfully submitted,

By: /James L. Davis, Jr./

Name: James L. Davis, Jr.

Registration No. 57,325

ROPES & GRAY LLP

Lead Counsel for Petitioners

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(a) and (d), the undersigned hereby certifies that the Petition For *Inter Partes* Review complies with the type-volume limitation of 37 C.F.R. § 42.24(a)(i) because, exclusive of the exempted portions, it contains 13,965 words as counted by the word processing program used to prepare the paper.

Dated: September 3, 2025

Respectfully submitted,

By: /James L. Davis, Jr./

Name: James L. Davis, Jr.

Registration No. 57,325

ROPES & GRAY LLP

Lead Counsel for Petitioners

CERTIFICATE OF SERVICE

I hereby certify that on September 3, 2025, I caused a true and correct copy of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 10,443,163 and supporting exhibits to be served via express mail on the Patent Owner at the following correspondence address of record as listed on Patent Center:

21888 - Thompson Coburn LLP
One US Bank Plaza
SUITE 3500
St. Louis, MO 63101
UNITED STATES

A courtesy copy was also sent via electronic mail to Patent Owner's litigation counsel at the following addresses:

Norman, Alan H. anorman@thompsoncoburn.com
Braunel, Matthew A. mbraunel@thompsoncoburn.com
Moussavi, Sartouk H. SMoussavi@thompsoncoburn.com
Weidner, Alex D. AWeidner@thompsoncoburn.com
'Gooby, Steven F.' steven.gooby@ansalaw.com

Dated: September 3, 2025

By: /James L. Davis, Jr./
Name: James L. Davis, Jr.
Registration No. 57,325
Lead Counsel for Petitioners