

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 IPR2025-01392
Patent No. 10,327,511

PETITION FOR *INTER PARTES* REVIEW

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EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 10,327,511 (“511” or “511 patent”)
1002	File History of U.S. Patent No. 10,327,511 (“511FH”)
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	Reserved
1012	Reserved
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> , <i>Publishers Weekly</i> , 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 IPR2025-01393 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
'511 or '511 patent	U.S. Patent No. 10,327,511 (Ex.1009)
'511FH	File History of U.S. Patent No. 10,327,511 (“Ex.1010”)
Claims / Challenged Claims	Claims 1-23 of the '511 patent
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
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, the knitted element comprising

[1.c.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,

[1.c.iii] the 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 upper metatarsal region during the knitting process, the 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,

[1.c.vii] 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.d.i] the upper toe region, the upper lateral and medial ball regions, and the upper lateral and medial metatarsal regions collectively being knitted with the wingtip pattern during the knitting process,

[1.d.ii] the wingtip pattern comprising a medial line of broguing and a lateral line of broguing,

[1.d.iii] 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,

[1.d.iv] 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,

[1.d.v] 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,

[1.d.vi] 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.

[2] A shoe as set forth in claim 1 wherein the central broguing portions of the medial and lateral lines of broguing meet at a rearwardly pointing apex.

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

[4] A shoe as set forth in claim 1 wherein the knitted element comprises 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 medial and lateral lines of broguing being adjacent a rear boundary of the first area, the medial and lateral lines of broguing being adjacent a forward boundary of the second area.

[5] A shoe as set forth in claim 4 wherein the first type of knit structure is more tightly knit than the second type of knit structure.

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

[7] 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.

[8] A shoe as set forth in claim 7 wherein the hot melt yarns constitute at least 15% by mass of the knitted element.

[9] A shoe as set forth in claim 8 wherein the covered spandex yarn constitute at least 50% by mass of the knitted element.

[10] A shoe as set forth in claim 9 wherein the covered spandex yarn comprises polyester covered spandex yarn.

[11] A shoe as set forth in claim 10 wherein the knitted element further comprises stretch yarn, the stretch yarn constituting at least 5% by mass of the knitted element.

[12] 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.

[13] A shoe as set forth in claim 7 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.

[14] 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.

[15.a.i] A shoe as set forth in claim 1 wherein the knitted element comprises 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,

[15.a.ii] 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.

[16] A shoe as set forth in claim 15 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.pre] A shoe comprising:

[17.a] a knit upper;

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

[17.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, the knitted element comprising

[17.c.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,

[17.c.iii] the 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,

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

[17.c.v] the knitted element including a line of broguing, the upper toe region being knitted with the line of broguing during the knitting process, the line of broguing comprising a line of holes,

[17.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 being at least in the upper toe region, the second area being at least in the upper lateral and medial metatarsal regions, the line of broguing being adjacent a rear boundary of the first area, the line of broguing being adjacent a forward boundary of the second area.

[18] A shoe as set forth in claim 17 wherein the first type of knit structure is a jersey

stitch knit and the second type of knit structure is a pointelle stitch knit.

[19] A shoe as set forth in claim 18 wherein the first type of knit structure is more tightly knit than the second type of knit structure.

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

[20.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

[20.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,

[20.a.iii] the 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,

[20.a.iv] the knitted element including a line of broguing, the line of broguing comprising a line of holes,

[20.a.v] 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,

[20.a.vi] 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 line of broguing being adjacent a rear boundary of the first area, the line of broguing being adjacent a forward boundary of the second area;

[20.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;

[20.c] the upper toe region being knitted with the line of broguing during the knitting step;

[20.d] the first and second areas being knitted 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 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;

[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 upper metatarsal region during the knitting step; the 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 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.

[23.pre] A method as set forth in claim 22 further comprising:

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

[23.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.

Pursuant to §§311-319 and §42.1,¹ Top Glory Trading Group Inc. and DP Dream Pairs Inc. (“Petitioners”) petition for IPR of Claims 1-23 (“Claims”) of USPN 10,327,511 (Ex.1009, the “’511”). 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

’511’s purported invention is directed to shoes having unitary, 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.*, formed at the boundary between different knit structures). ’511,1:25-29, 2:22-23, 3:44-56, Fig. 1, cl. 1. Adanur ¶¶43.

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.

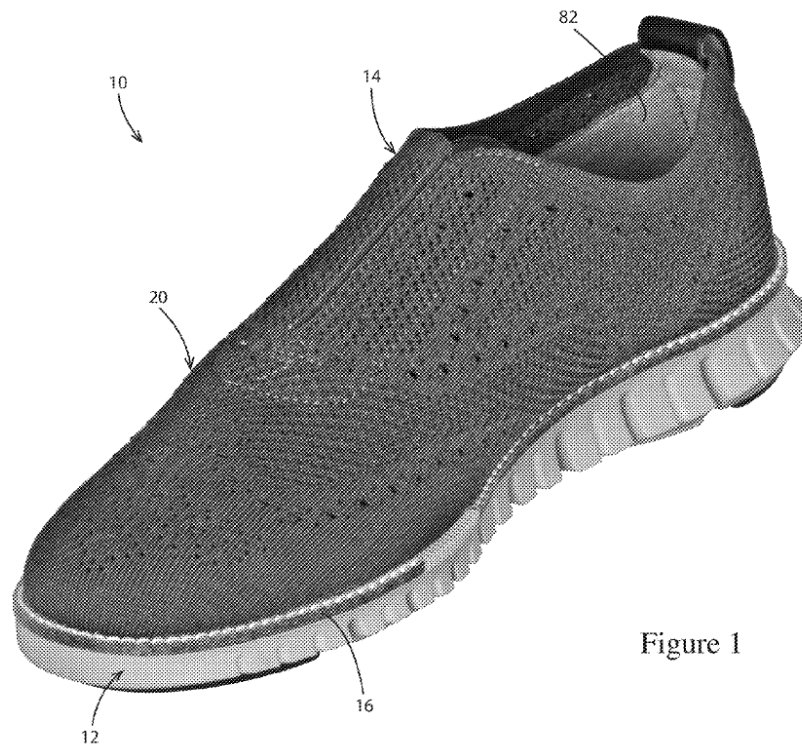


Figure 1

'511, Fig. 1.

During prosecution of '511, the Examiner allowed the Claims only after the Applicant argued the claimed seamlessly knit *wingtip pattern, lines of broguing* ('511FH, 134-35), and *configuration* of two different knit structures ('511FH, 140-41), were not taught in the prior art. *See infra* §V.B. Adanur ¶¶74-77.

But '511 does not purport to have identified any new techniques for seamless knitting, much less seamlessly knitting the claimed wingtip pattern, lines of broguing, or configuration of knit structures, or any advantageous structural/functional characteristics associated with these features. Adanur ¶¶43-45.

As explained below, the wingtip pattern, lines of broguing, and/or

configuration of different knit structures are aesthetic features that should not be given patentable weight, and the remaining functional/structural limitations were well-known in the prior art. But even if those features are entitled to 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 '511, and it would have been an obvious design choice to apply the wingtip pattern and knit structure configurations using the prior art techniques for making seamlessly knitted, patterned shoe uppers. Adanur ¶¶46-67.

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 '511 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 10,443,163 (IPR2025-01393) 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 '511 is available for IPR. Petitioners and any RPI 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 as unpatentable.

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. Adanur ¶¶30-42.

2. Statutory Grounds on Which the Challenge Is Based

Ground	Claim(s)	Basis	Primary Reference	In view of
1	1-23	§103	Dua	N/A
2				'762/'288
3	1-20			Flusser
4				'762/'288, Flusser
5				Litke
6				'762/'288, Litke
7	7-12, 14			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 ¶¶205-206.

8				'762/'288, Flusser, Podhajny
9	13			Blakely
10				'762/'288, Flusser, Blakely

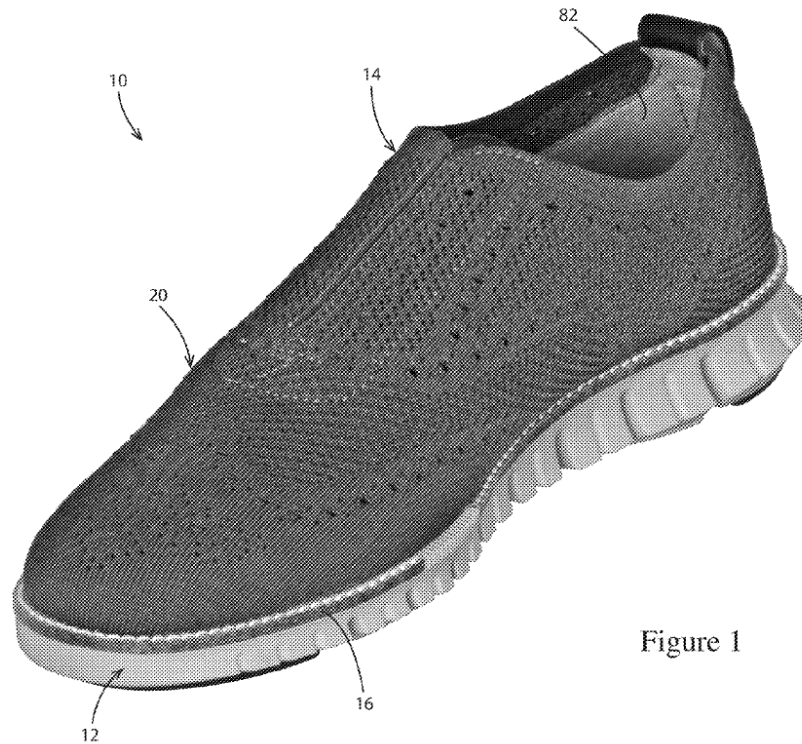
Adanur ¶¶89-91.

V. '511

A. Overview

The purported invention of '511 relates to footwear/shoes “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. '511, 1:25-29, 1:48-49, 2:15-18. Along with the shoe itself, the invention relates to the “method of manufacturing” footwear/shoes by knitting the upper on a “knitting machine” before attaching it to a sole. '511, 2:24-25. Adanur ¶¶68.

The “knitted element 20 is formed of a unitary one-piece construction during a knitting process,” with adjacent regions being “seamlessly knitted.” '511, 3:44-65, 4:12-18. Adanur ¶¶69.



'511, 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. '511, 4:19-21, 4:21-25. The patterns include lateral/medial lines of broguing having “wing-shaped curved line[s] of holes” formed through the “knitting process.” '511, 4:30-32, 4:36-45, 4:57-60. Adanur ¶¶71-72.

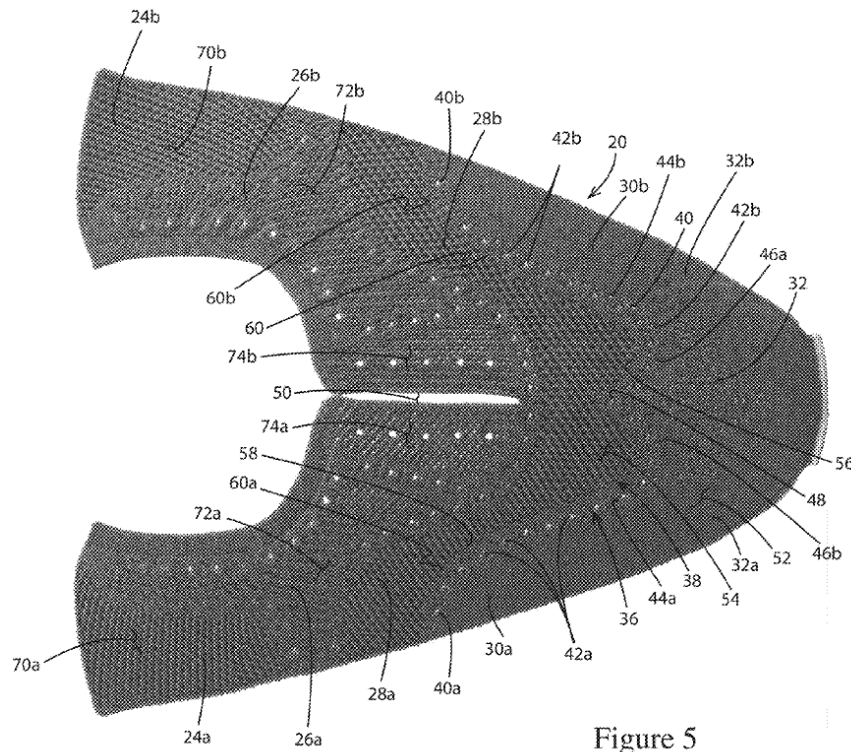


Figure 5

'511, Fig. 5.

'511 does not identify any unconventional techniques used to manufacture the claimed knitted upper. Instead, '511 discloses a generic "CNC knitting machine" can be used. '511, 5:61-64. Similarly, '511 does not identify any advantages associated with the claimed pattern/configuration of the upper. Adanur ¶¶72-73.

B. Prosecution History

During '511's prosecution, the pending claims were rejected as obvious over U.S. Patent 7,347,011 ("'011") alone or in view of U.S. Patent 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.

VI. §325(D) AND §314(A) DISCRETION DOES NOT APPLY

A. §325(d)

Dua, Flusser, Litke, Podhajny, and Blakely were never identified in an IDS or considered. Examiner never issued a rejection on §§102/103 grounds during '511's prosecution. The primary reference, **Dua** (including '762/'288 incorporated by reference, *see* §IX.A.1-4) is not the same or substantially the same as '011 cited during 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, the Examiner erred in a manner material to the patentability of the Claims. For example, it was error to allow the Claims because, *e.g.*, the Examiner (1) improperly gave patentable weight to ornamental features including the claimed “wingtip pattern” and knit structure configuration (*see infra*, §VIII.A) and (2) failed to reject the Claims over references or combinations of references teaching a shoe including a patterned, seamlessly knitted upper with varied knit structure configurations, which could be disposed in various regions of the upper for aesthetic purposes, and a wingtip brogue-style shoe. *See* §IX.

B. §314(a)

The co-pending NJ Case does not warrant the exercise of discretion under §314(a) as Petitioners intend to seek a stay, no trial date has been set, and upon

institution of this IPR proceeding, 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. Additionally, the Petition is strong and presents compelling unpatentability arguments overlooked during prosecution, *see* §§IX.A-E, and the patent had not been asserted until PO filed the NJ case against Petitioners in 2025. Additionally, based on the parties' presuit correspondence, Petitioners had settled expectations PO did not intend to assert '511. Regardless, PO has not developed settled expectations regarding this patent, which issued in October 2019.

Accordingly, the Board should not exercise its discretion to deny institution. §314(a).

VII. LEVEL OF ORDINARY SKILL IN THE ART

On or before the '511'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* ¶¶1-42, 78-80.

VIII. CLAIM CONSTRUCTION

IPR claims are to be construed according to *Phillips*. §42.100(b). While the

references that form the basis of this petition teach or suggest each Claim limitation, Petitioners assert that certain claim limitations reciting ornamental/aesthetic features are not entitled to patentable weight. Alternatively, Petitioners apply plain and ordinary meanings of all terms. Adanur ¶¶81-82.

Only terms necessary to resolve the controversy must be construed. 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 Adanur ¶¶81-82.

A. Aesthetic/Ornamental 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

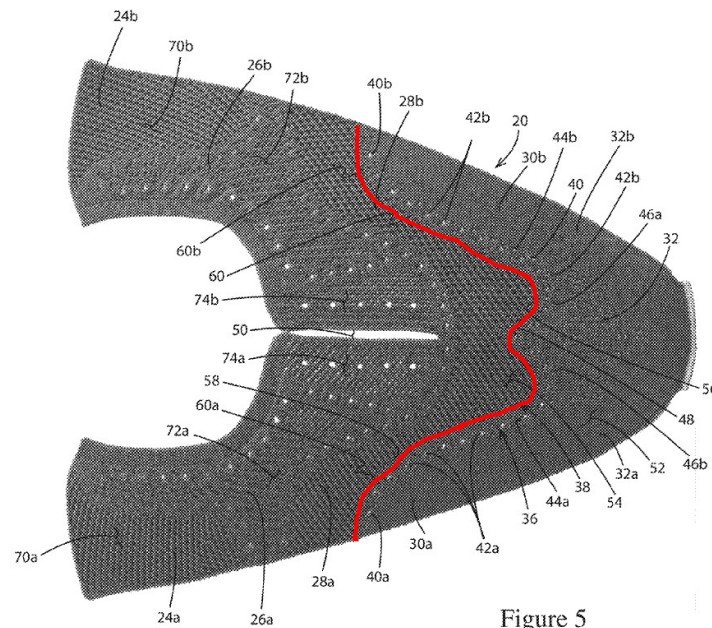
³ *E.g.*, “pointelle,” “heel,” “midfoot,” “metatarsal,” and “toe” “region[s],” “hot melt yarn” and “stretch yarn.” Adanur ¶¶82.

distinguish a claim from prior art. *Id.*, 231; MPEP 2144.04.I (ornamental limitations “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, the independent 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.d], [15.a.ii], [17.c.v], [17.c.vi], [20.a.iv], [20.a.vi], [20.c], which recite ornamental/aesthetic wingtip and/or broguing designs; and the recitations of ornamental/aesthetic arrangements of different types of knit structures in [1.c.vi], [17.c.vi], [20.a.vi], [21.a.iv]. PO/named inventors have a design patent directed to Figures 1-4. Ex.1054. Adanur ¶83.

With respect to the wingtip/broguing limitations, they merely recite the pattern, its location, and/or a description of its shape, which have no structural or mechanical relationship to the claims. *Seid*, 161 F.2d at 231; Adanur ¶84.



'511, Fig. 5.

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 ¶¶85-86.

Because each of the features identified above, including the pattern like 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 the [prior art] teachings,” the limitations are not entitled to patentable weight. *Cf. Hilton*, 148 U.S.P.Q. at 356. *See also* §§IX.A-C. But as explained herein, even if these features are entitled to patentable weight, the prior art at minimum renders them obvious. *See* §§IX.A-D; 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 '511. Adanur ¶¶1-289.

Although '511 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 already known. For example, **Dua** describes a knitted dress shoe upper formed of a seamless, unitary knit construction with patterns and specific knit types located in desired areas of the knitted component for structural or aesthetic reasons. Additionally, **Flusser** discloses the wingtip pattern is one of seven common men's dress shoe designs, and **Litke** discloses shoes having a wingtip pattern. 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 of the recited limitations. Adanur ¶¶89-93.

A. Grounds 1-2: **Dua** alone and in view of '762/'288 (Claims 1-23)

Dua incorporates by reference '762 and '288. **Dua**, [0022] ("Additional examples of knitted components for 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 footwear uppers having fused regions may be found in ['288] to **Dua**, which is incorporated

herein by reference.”). Thus, while ’762/’288 are cited separately herein, those disclosures form a part of Dua’s disclosure. At minimum, it would have been obvious to apply these teachings to Dua for the same reason in §IX.A.2. Adanur ¶¶94-96.

1. Overview of Dua

Dua discloses an “article of footwear,” such as a “dress shoe,” including “a sole structure and an upper 30,” where the upper is “formed of a knitted component 40...manufactured through a flat knitting process.” Dua, [0015], [0017], [0020]. Sections of the knitted component are formed as a “unitary knit construction” where “the features and structures are formed...through the flat knitting process, rather than other processes (e.g., stitching, bonding, shaping) that are performed after the flat knitting process.” Dua, [0037]; *see also* ’762, 2:66-3:9, 6:50-65. Adanur ¶¶97.

Dua discloses using a knitting machine to create an upper with “specific knit types [located] in desired areas of the knitted component” to provide “desired features” such as “advantageous structural attributes.” Dua, [0040]. For example, the knitted component may form “various apertures 41...in forefoot region 11, whereas many other areas of upper 30 have a more continuous or less-apertured configuration.” Dua, [0022]. “[T]he density of the knit” (Dua, [0022]), “knitted structures” (Dua, [0040]), or “yarn types” (Dua, [0023]) may be varied in areas of the upper. *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). For example, patterns may be formed by areas having varied knit structure or density, e.g., “in the forefoot region 11.” Dua, [0044], Fig. 7D (apertures 41/dense area 48); *see also* ’762, 7:63-8:5 (conventional knitting machines could create “complex patterns” for the upper); ’288, 8:9-57, 10:50-65 (fusible yarns may be used throughout the upper or in select areas). Adanur ¶¶98-99.

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

As noted, Dua expressly incorporates ’762/’288 by reference in its entirety such that the disclosures of ’762/’288 are the disclosures of **Dua**. Dua, [0022], [0043]. 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 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 a common inventor, Dua, and are assigned to Nike. **Dua** and ’762/’288 are analogous art, in the same field as ’511, which includes footwear, and are reasonably pertinent to purported problems addressed by the named inventors of ’511 involving the improvement of the design and manufacture of knitted or textile footwear uppers. ’511, 1:25-29, 3:23-25, 4:57-60; Dua, [0001]-[0004]; ’762, 1:8-12; ’288, 1:7-11; Adanur ¶¶100-103.

POSITA would have been motivated to apply textile elements and uppers teachings of '762 to **Dua**'s textile element/upper as such a combination is expressly contemplated by **Dua**. Dua, [0040]. Adanur ¶104.

For example, POSITA would have been motivated to apply '762's teachings of an 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 "specific knit types [located] in desired areas of the knitted component" may provide "desired features" such as "advantageous structural attributes." Dua, [0040]. Adanur ¶105.

POSITA would have been motivated to apply '762's teachings of an upper where 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 ¶¶60-62, 105.

Dua and '288 each disclose the use of thermoplastic polymer yarns for a textile shoe upper where 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 the abrasion resistance of fused textiles or stretch of an unfused textile. *Dua*, [0043]; '288, 5:30-41, 9:58-10:50. Additionally, POSITA would have been motivated to apply the teachings of '288 with respect to 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 reasonable expectation of success applying '762/'288's teachings to **Dua**'s knit upper, and POSITA would have known the combination (yielding the claimed limitations) would predictably work and provide the expected results. *Adanur* ¶108.

3. Analysis of Claims 1-14, 16, 22-23

a. [1.pre] A shoe comprising

To the extent limiting, **Dua** discloses a shoe (*e.g.*, "article of footwear"). *Dua*, Abstract; *see also* [0004]. *Adanur* ¶¶109-111.

Dua discloses an “article of footwear,” including “walking” and “dress shoes.” *Dua*, Abstract, [0015]; *see also* [0035], [0037]. *Adanur* ¶¶111-112.

b. [1.a] a knit upper;

Dua discloses a knit upper (e.g., “[k]nitted component 40” “formed of unitary knit construction”). *Dua*, [0035]. *See also* [1.pre].⁴ *Adanur* ¶113.

For example, **Dua** discloses using “knitting machines” to “form [uppers] of unitary knit construction” through a “single [] knitting process.” *Dua*, [0035]-[0037]. *Adanur* ¶¶113-115.

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

Dua discloses this limitation (e.g., “sole structure secured to the upper”). *Dua*, Abstract. *See also* [1.pre]. *Adanur* ¶116.

Dua discloses “an upper that includes a knitted component and a sole structure secured to the upper.” *Dua*, Abstract. *Adanur* ¶¶116-118.

⁴ As used herein, references to claims/limitations (e.g., [1.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., [1.pre](G1-2)).

- d. [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, the knitted element comprising

Dua discloses the knit upper having a knitted element (*see* [1.a]), the knitted element being formed of a unitary one-piece construction (*e.g.*, “[k]nitted component 40” is “formed of unitary knit construction”) **during a knitting process on a knitting machine, the knitted element** (*e.g.*, “knitting machines may [be used to] form[...]knitted components 40”). **Dua**, [0036]-[0037]. *See also* [1.pre]. **Adanur** ¶119-120.

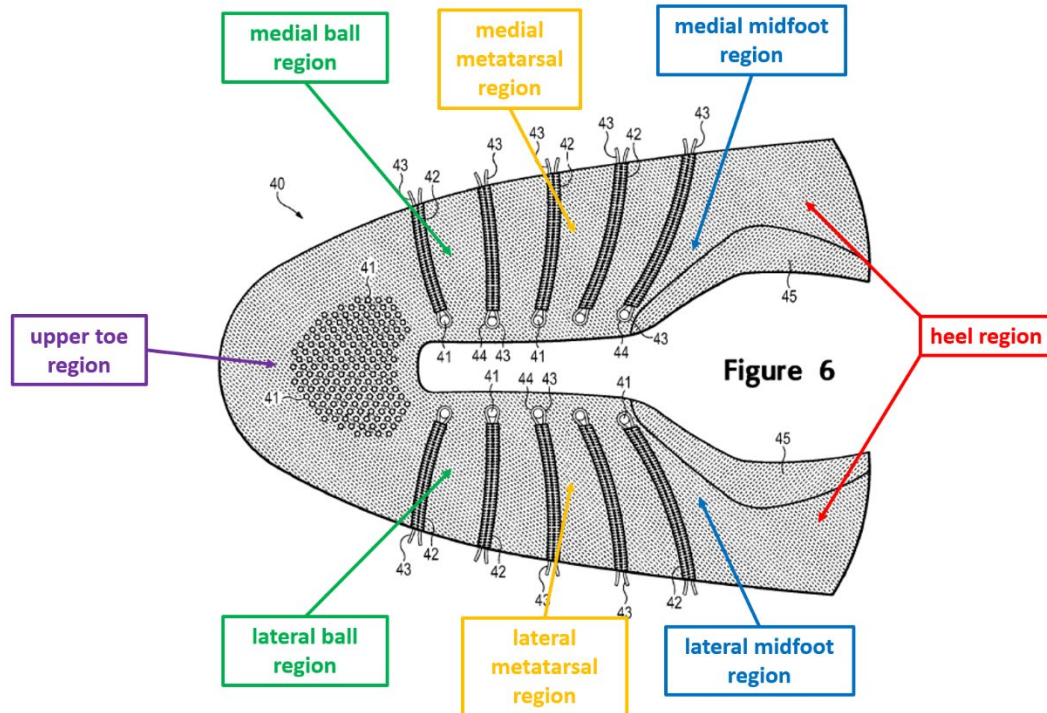
Dua discloses using “knitting machines” to form knitted components of the upper. **Dua**, [0036]-[0037]. The knitted components are “formed of unitary knit construction” through a “single [] knitting process.” **Dua**, [0035], [0037]. **Adanur** ¶¶119-121.

- e. [1.c.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,**

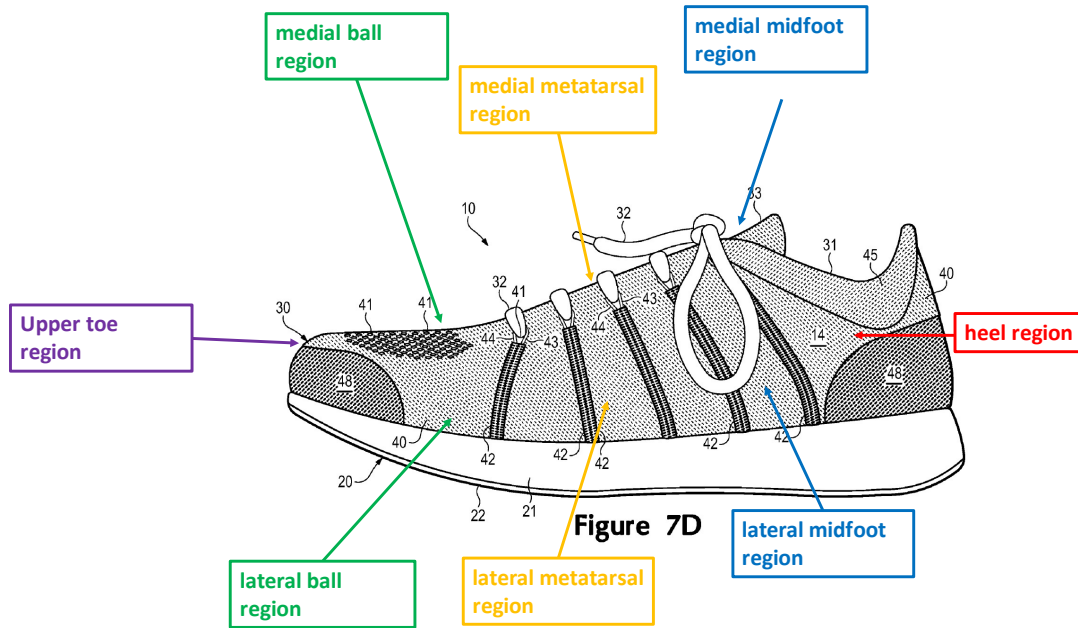
Dua discloses this limitation (*e.g.*, annotated Fig. 6 below). **Adanur** ¶122.

For example, **Dua** discloses “a forefoot region 11, a midfoot region 12, and a heel region 13” and “[l]ateral side 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 ¶¶123-124.



Dua, Fig. 6.

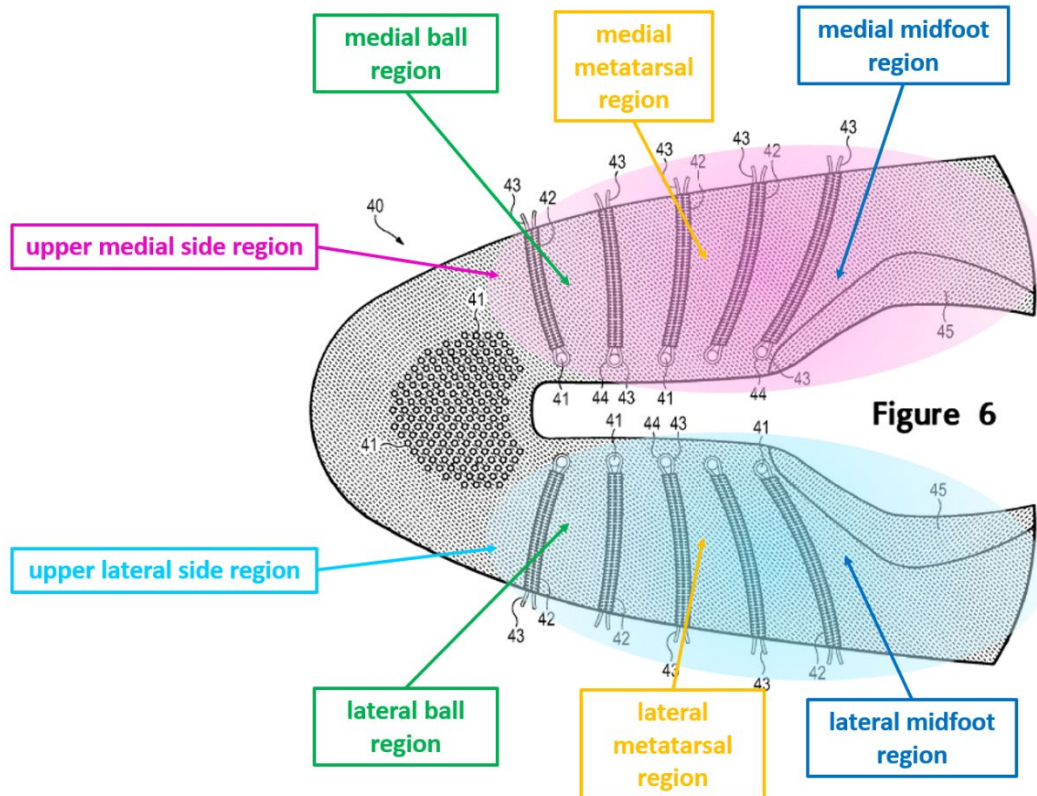


Dua, Fig. 7D.

- f. [1.c.iii] the 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., annotated Fig. 6 below). *See also* [1.pre]-

[1.c.ii]. Adanur ¶125.



Dua, Fig. 6. Adanur ¶126.

- g. [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 upper metatarsal region during the knitting process, the 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* [1.pre]-[1.c.iii]. Adanur ¶127.

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** 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* Fig. 6, [1.c.iii]. *Adanur* ¶¶127-129.

- h. [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;**

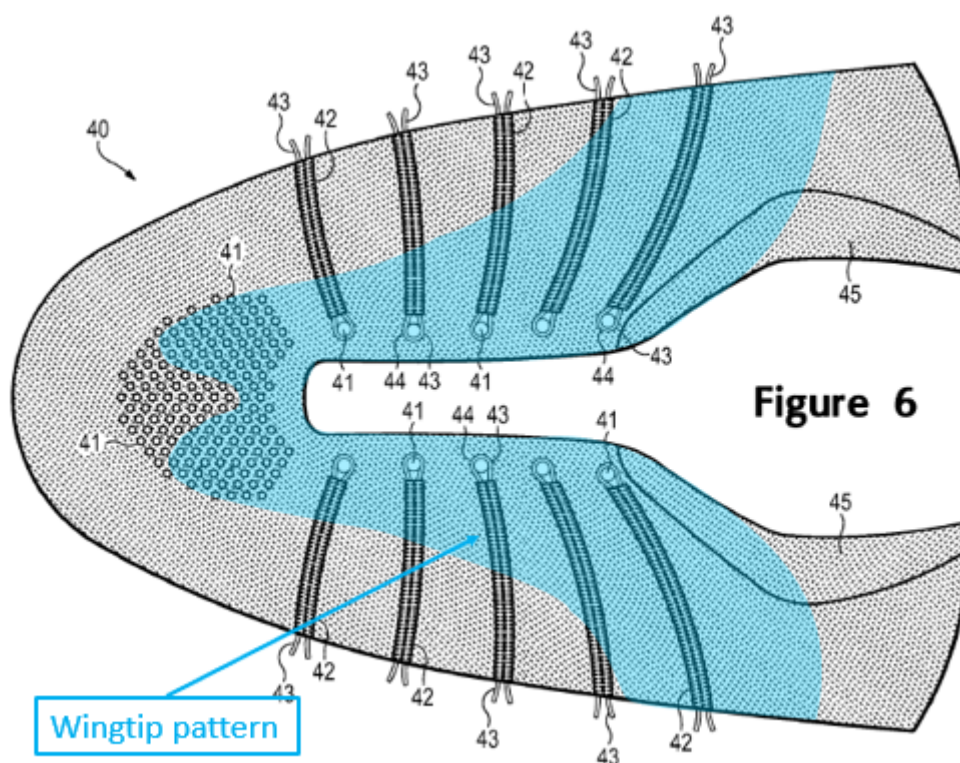
Dua renders obvious this limitation (e.g., “various knit types that impart different properties to separate areas of [the] upper” such “areas of upper hav[ing] more or less apertured configuration” based on desired properties). *Dua*, [0022], [0035]; *see also* [1.c.iii]. *Adanur* ¶¶130-131.

For example, **Dua** discloses “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” including areas with a “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 such as “tubes 42” extending longitudinally “through each region 11-

13,” i.e., forefoot region 11, midfoot region 12, and heel region 13). Adanur ¶¶131-132.

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 ¶133. 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 Adanur ¶133. 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 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 by reshaping and extending the apertured configuration shown in Fig. 6 as illustrated below. Dua, [0015]; ’762, 7:63-8:5 (“complex patterns”). Adanur ¶133.

⁵ See, e.g., Flusser, 99-104 (discussing “approximately seven” men’s dress shoe styles); Litke, Fig. 3 (wingtip pattern 15i), 5:29-48, 5:64-66.



Dua, Fig 6 (annotated).⁶ Adanur ¶¶130-133.

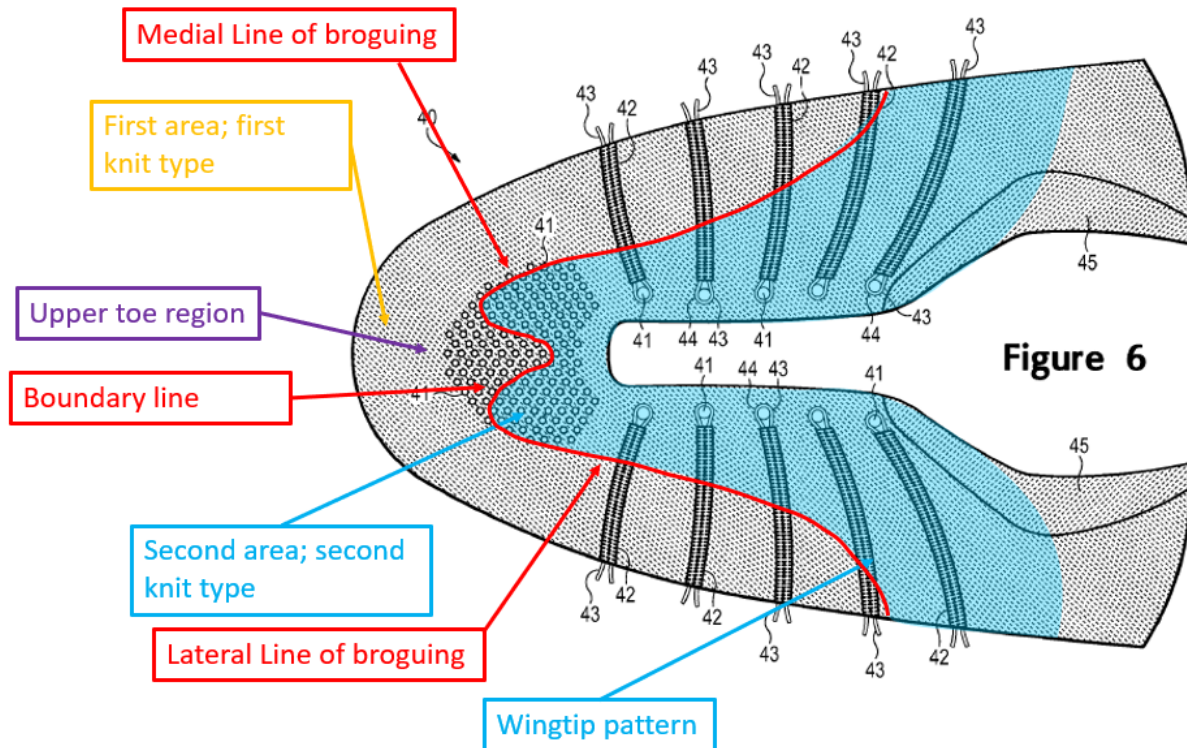
⁶ While the wingtip annotation is illustrative, the claims are met regardless of the particular shape of the wingtip.

- i. [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

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., annotated Figs. 6 and 7D below). Dua, [0022]. *See also* [1.c.v]. Adanur ¶134.

For example, **Dua** discloses the knitted component may have varied density of the knit among separate areas of the upper, such as “various apertures 41...in the forefoot region, whereas many other areas...have a more continuous or less-apertured configuration.” Dua, [0022], [0035]. Additionally, **Dua** discloses a dense

area (48 in Fig. 7D below) has an increased “knit density” in the forefoot region 11 (i.e., toe). Adanur ¶¶135-136.



Dua, Fig 6 (annotated). Adanur ¶¶134-136.

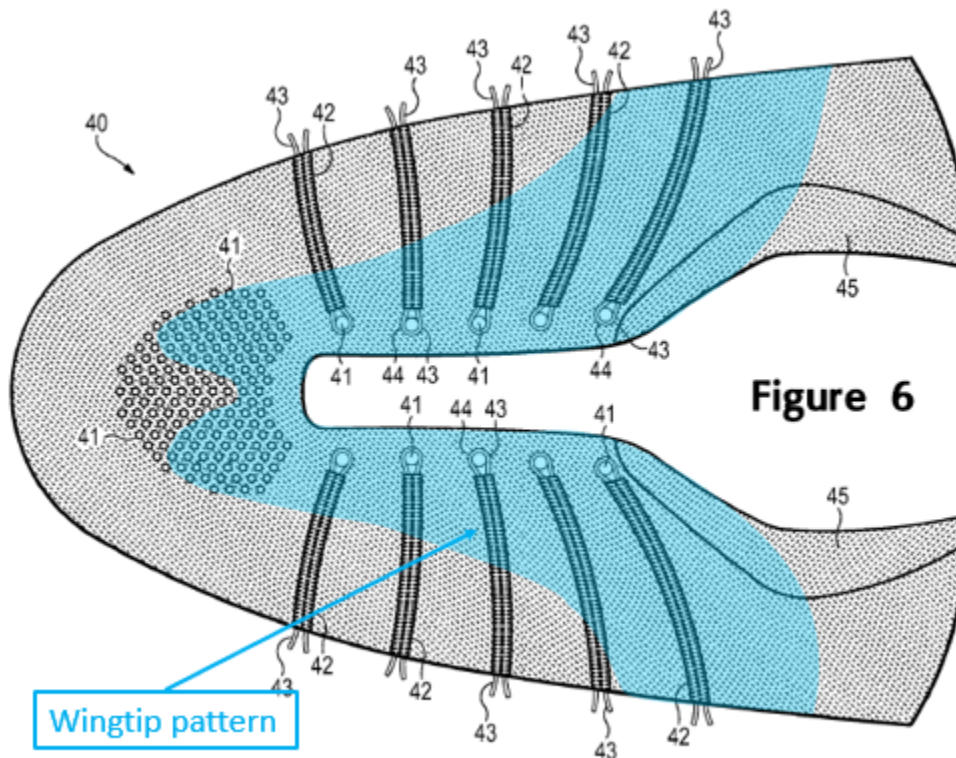
- j. [1.d.i] the upper toe region, the upper lateral and medial ball regions, and the upper lateral and medial metatarsal regions collectively being knitted with the wingtip pattern during the knitting process,

See [1.c.ii]-[1.c.v]. Dua renders obvious 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* [1.pre]-
[1.c.ii] Adanur ¶137.

As discussed in [1.c.v], it would have been obvious to try a wingtip pattern. The wingtip pattern reshapes and extends the apertured configuration pattern shown in Fig. 6 (as illustrated below in blue). Adanur ¶138. 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 ¶¶138-139.

⁷ *Supra* n.3.



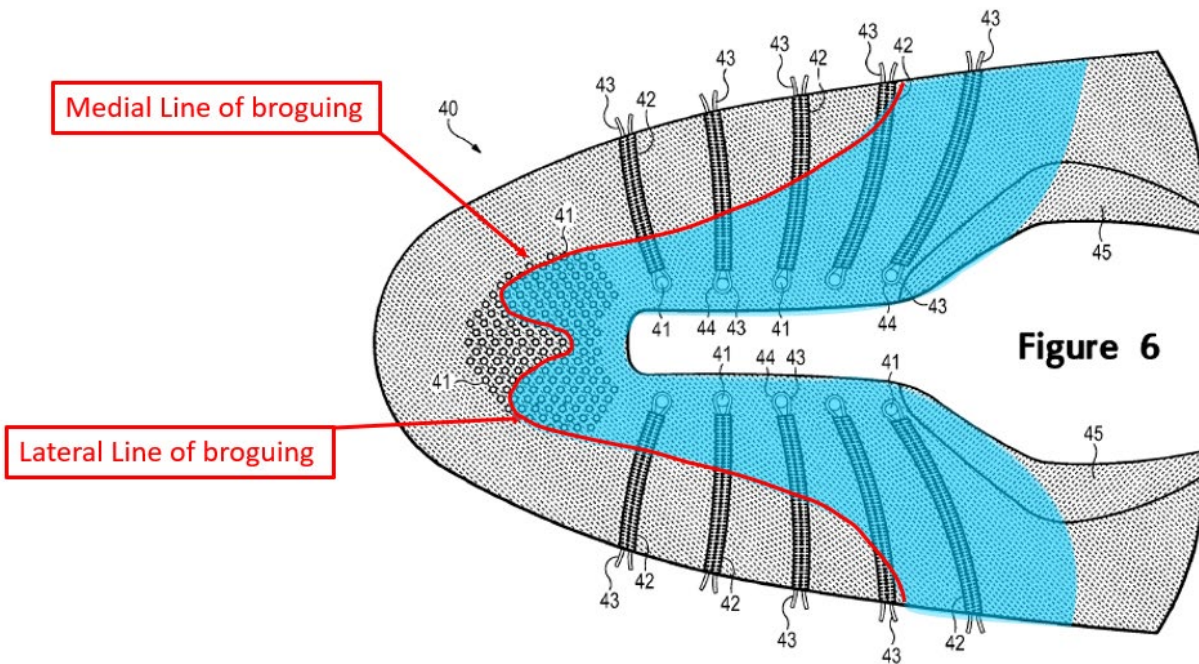
Dua, Fig 6 (annotated). Adanur ¶¶137-139.

- k. [1.d.ii] the **wingtip pattern** comprising **a medial line of broguing and a lateral line of broguing**,

See [1.c.ii]-[1.d.i]. Dua renders this limitation obvious (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* [1.pre]-[1.c.vi]. Adanur ¶¶140-141.

As stated above, 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 by

extending the apertured configuration in Fig. 6 to form a wingtip. Dua, [0015]; '762, 7:63-8:5. And doing so would have resulted in medial and lateral lines of line of broguing, as illustrated in Fig. 6 below. Adanur ¶¶142.



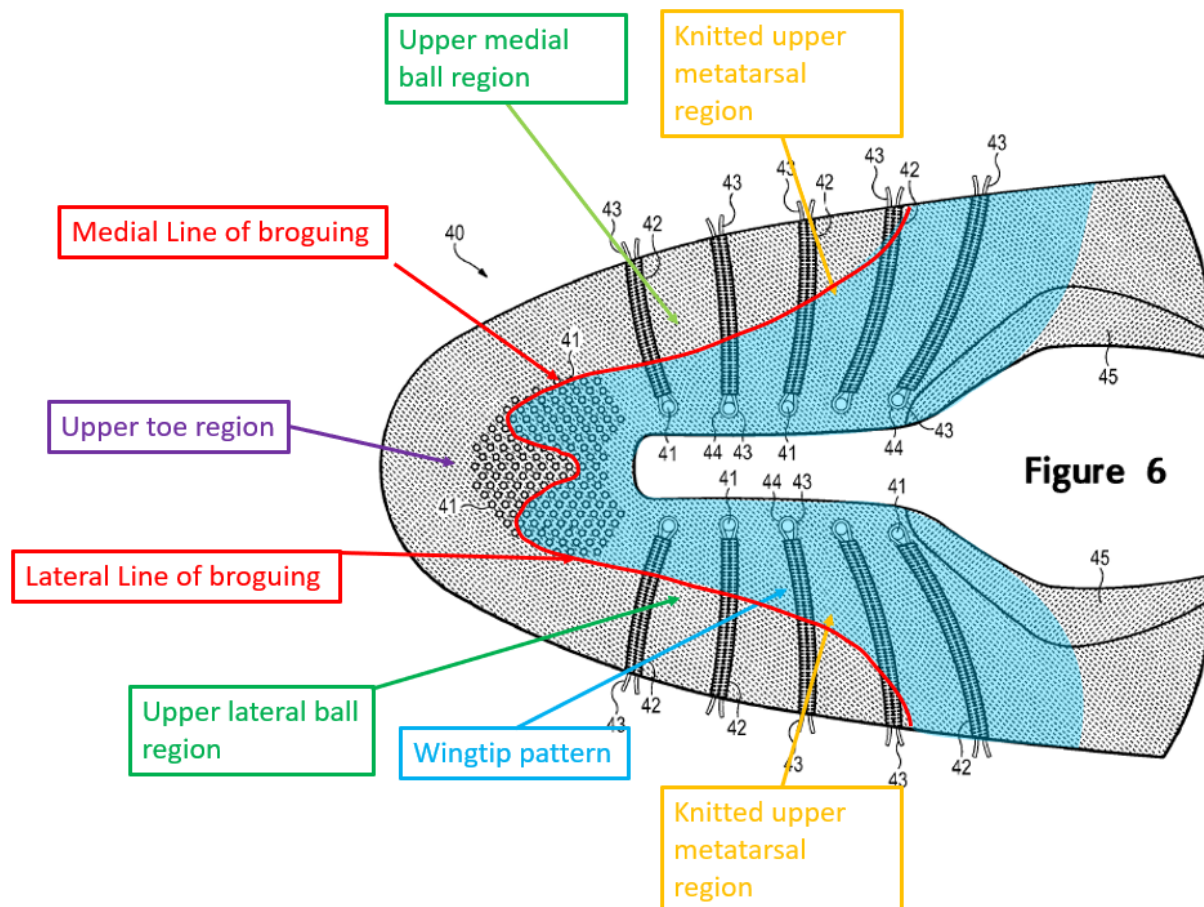
Dua, Fig 6 (annotated). Adanur ¶¶140-142.

- I. [1.d.iii] 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,

See [1.c.ii]-[1.d.ii]. Dua renders this limitation obvious (*e.g.*, annotated Fig. 6 below). Adanur ¶¶143-144.

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

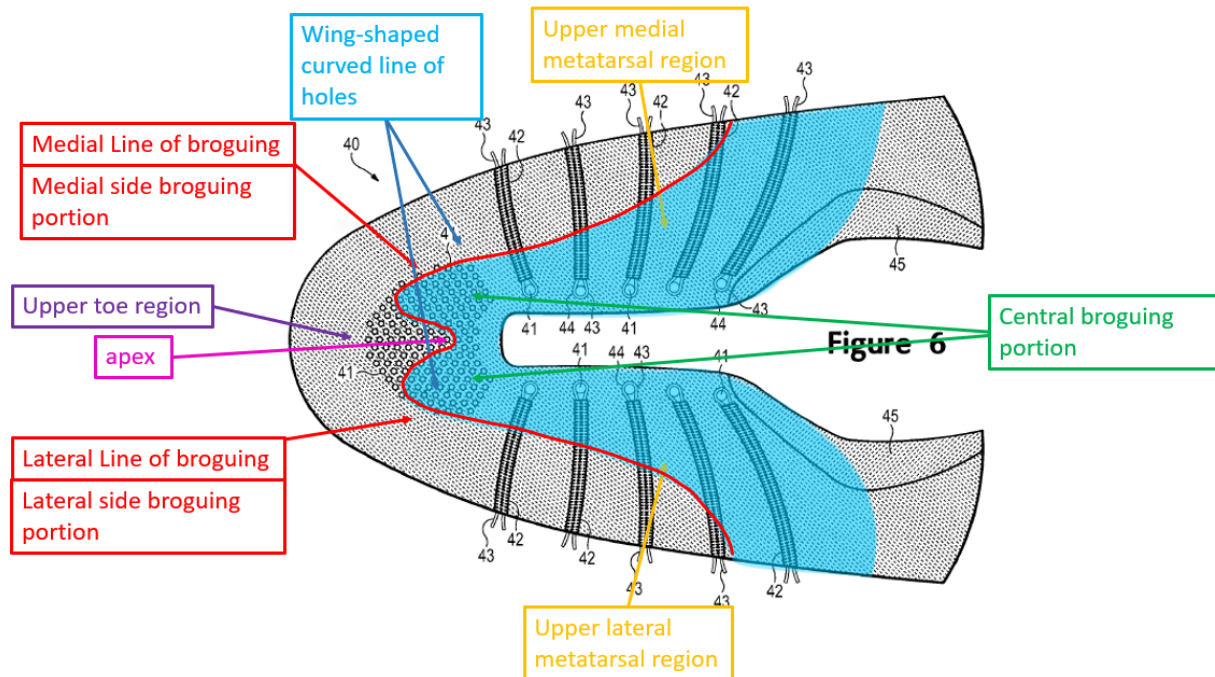
areas of upper 30” such “areas of upper hav[ing] more or less apertured configuration” based on desired properties (Dua, [0022], [0035]). Those patterns can be portions of “many regions of the upper.” Dua, [0022], [0046], Fig. 7G (depicting knit structures, e.g., “tubes 42” extending longitudinally “through each region 11-13,” i.e., forefoot region 11, midfoot region 12, and heel region 13). See [1.c.v-vi]. **Dua** already discloses two different areas with a boundary line between them, and it would have been obvious to try a wingtip pattern, thus resulting in the footwear annotated below:



Dua, Fig 6 (annotated). Adanur ¶145.

- m. [1.d.iv] 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**,

See [1.c.ii]-[1.d.iii]. Dua renders obvious this limitation (e.g., annotated Fig. 6 below). See [1.d.iii]. Adanur ¶146.



Dua, Fig 6 (annotated). Adanur ¶¶146.

- n. [1.d.v] 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**,

See [1.c.ii]-[1.d.iv]. Dua renders obvious this limitation for the same reason as [1.d.iv] (e.g., [1.d.iv], annotated Fig. 6). Adanur ¶147.

- o. [1.d.vi] 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**.

See [1.c.ii]-[1.d.v]. Dua renders obvious this limitation for the same reason as [1.d.iv] (e.g., [1.d.iv], annotated Fig. 6). Adanur ¶148.

- p. [2] A shoe as set forth in claim 1 wherein the **central broguing portions** of the **medial and lateral lines of broguing** meet at a rearwardly pointing **apex**.

See [1]. Dua renders obvious this limitation for the same reason as [1.d.iv] (e.g., [1.d.iv], annotated Fig. 6). Adanur ¶¶149-150.

- q. [3] A shoe as set forth in claim 2 wherein the upper further comprises a **throat**, and wherein the **apex** points toward the throat.

See [2]. Dua renders obvious the upper further comprises a **throat** (e.g., *see* annotated Fig. 6 below), and wherein the apex points toward the throat (e.g., *see* [2]). Adanur ¶¶151-152

For example, **Dua** discloses the upper includes an ankle opening and a throat for a tongue. The pattern (including its apex) is rendered obvious by Dua for the reasons in [1.c.v], [1.d.i], and [2]. Adanur ¶¶151-152.

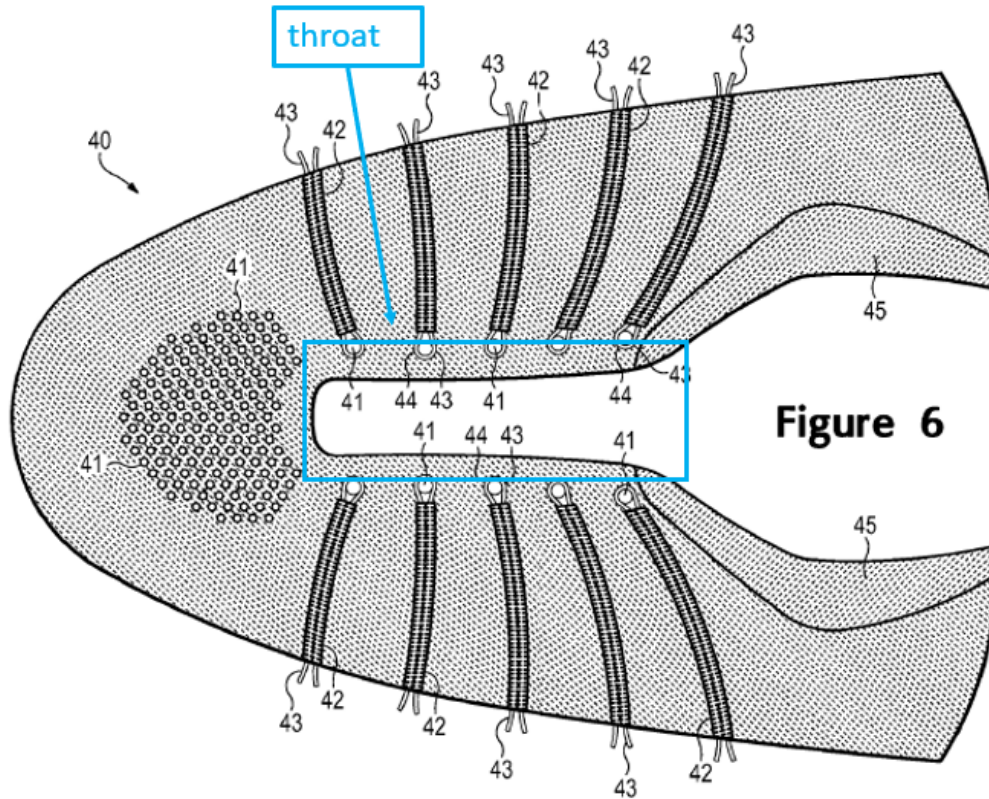


Figure 6

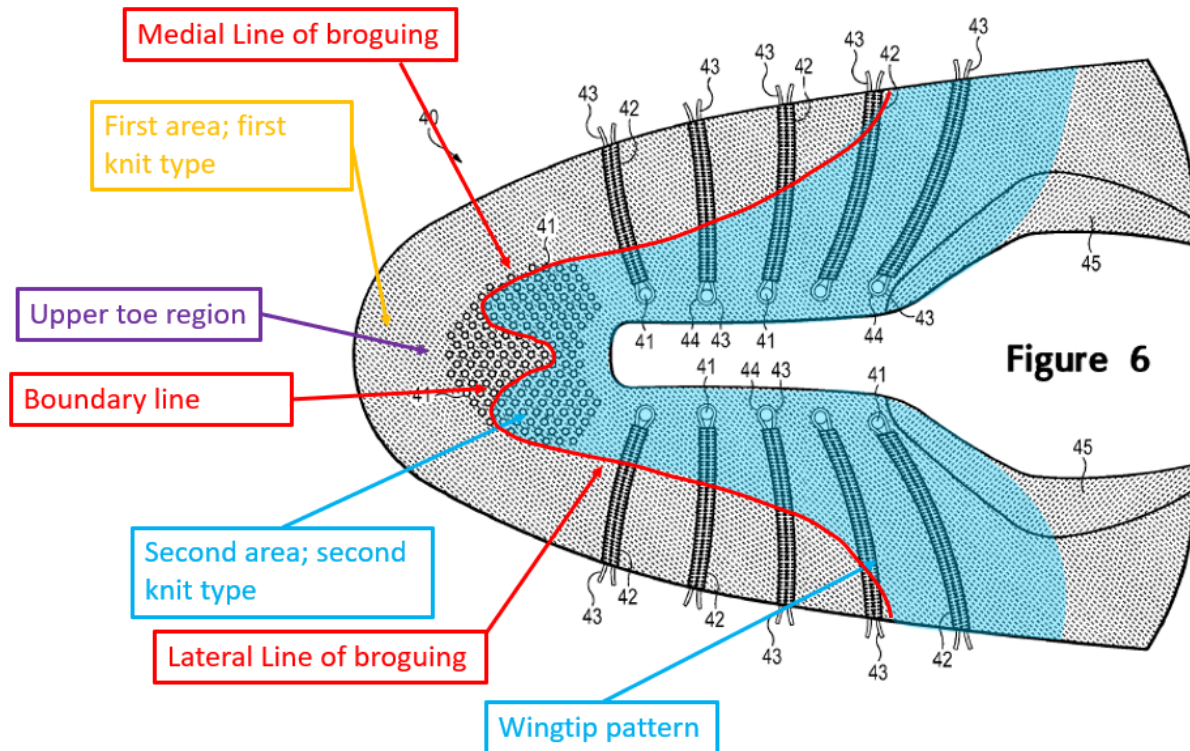
Dua, Fig. 6. Adanur ¶152.

- r. [4] A shoe as set forth in claim 1 wherein the knitted element comprises 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 **medial and lateral lines of broguing** being adjacent a rear boundary of the first area, **the medial and lateral lines of broguing** being adjacent a forward boundary of the second area.

See [1]. **Dua** renders obvious this limitation. Figs. 6, 7D. *See* [1.c.vi].

Adanur ¶¶153-154.

For example, **Dua** discloses “[k]nitted component 40 incorporates various knit types” and “areas of upper 30 hav[ing] a more continuous or less-apertured configuration” or higher “knit density.” **Dua**, [0022], Figs. 6, 7D. As discussed in [1.c.vi], POSITA would have been motivated to apply a wing-tip pattern to the shoe, which meets the claims as illustrated. Adanur ¶154.



Dua, Fig 6 (annotated). Adanur ¶154.

- s. [5] A shoe as set forth in claim 4 wherein the first type of knit structure is more tightly knit than the second type of knit structure.

See [4]. **Dua** renders obvious this limitation. Dua, [0022], [0044]; see [1.c.vi]. Adanur ¶155.

Dua discloses apertures 41 with an adjacent region is more tightly knit, i.e., has a “less apertured configuration” as shown in Fig. 6. Dua, [0022]. **Dua** discloses “increas[ing] the knit density in specific areas,” such as the forefoot region, such that there are areas of greater and lesser knit density, i.e., areas having knit structures that

are more tightly knit than other areas. Dua, [0022], [0044]. As discussed in [1.c.v]-[1.c.vi], it would have been obvious to reshape the apertured region to form a wingtip pattern. Adanur ¶156.

- t. **[6] A shoe as set forth in claim 4 wherein the first type of knit structure is a jersey stitch knit and the second type of knit structure is a pointelle stitch knit.**

See [4]. Dua discloses or at minimum renders obvious this limitation.
'762, 4:17-38; Dua, [0022]. *See also* [1.pre]. Adanur ¶¶157-158.

For example, **Dua** discloses a dense area (48 in Fig. 7D) that has an increased “knit density” (such as a “jersey knit”) in the forefoot region 11 (including the toe region). Dua, [0022-0024]; '762, 4:17-38. **Dua** discloses using “various knit types” such as an “apertured configuration” in the various regions of the shoe, which includes the knitted upper lateral and medial metatarsal regions. Dua, [0022]. As discussed in [1.c.v] and [1.d.i]-[1.d.vi], it would have been obvious to try a wingtip pattern. The wingtip pattern reshapes and extends the apertured configuration 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.* Adanur ¶¶158-160.

There are a variety of inconsistent definitions for “pointelle” in the art. *See, 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])).⁸ 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]. 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 ¶¶45-67, ¶¶160-162.

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

⁸ Ex.1021, at 71-73 ("Knitting technique pointelle: Transferring individual stitches, needles will be free, which then are picked-up again through the subsequent knitting (=tuck). *At this position results a hole=pointelle.*").

desired properties (Dua, [0022], [0035]). Adanur ¶163.

- u. [7] 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 ¶164.

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 trade name for

elastane/spandex, which are synonymous.⁹ '762, 4:17-38. Hot melt yarns are yarns that incorporate thermoplastic materials like a thermoplastic polymer.¹⁰ Dua discloses knitting these materials with one another in forming the upper. Dua, [0040], [0043]. Adanur ¶¶60-62, 165.

- v. **[8] A shoe as set forth in claim 7 wherein the hot melt yarns constitute at least 15% by mass of the knitted element.**

See [7]. Dua renders obvious this additional limitation (*e.g.*, “yarns that incorporate thermoplastic polymer materials”). Dua, [0043]. Adanur ¶166.

POSITA would have understood (or at a 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. 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

⁹ *See, e.g.*, 16 C.F.R. § 303.7(k); Ex.1015, 12:65-13:14.

¹⁰ *See, e.g.*, Ex.1016, [0057]-[0059] (“a hot-melt synthetic material, such as polyamide [and] polyurethane,” that can be melted to adhere to adjacent yarns/fibers); Ex.1017, [0074]-[0075] (similar).

element. Adanur ¶167.

- w. [9] A shoe as set forth in claim 8 wherein the covered spandex yarn constitute at least 50% by mass of the knitted element.

See [8]. **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 ¶168.

POSITA would have understood (or at a minimum found obvious) **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 sections 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. **Dua** discloses 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 ¶¶60-62, 169.

- x. [10] A shoe as set forth in claim 9 wherein the covered spandex yarn comprises polyester covered spandex yarn.

See [9]. **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 ¶170.

Dua discloses using “covered LYCRA” and explains “other fibers or filaments exhibiting elastic properties may also be utilized.” ’762, 4:17-38; Dua, [0023]. **Dua** 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.¹¹ Dua, [0023]; Adanur ¶171.

- y. **[11] A shoe as set forth in claim 10 wherein the knitted element further comprises stretch yarn, the stretch yarn constituting at least 5% by mass of the knitted element.**

See [10]. Dua renders obvious this additional limitation (*e.g.*, sections can be “knit with a stretch yarn”). Dua, [0023]; ’762, 8:43-59. Adanur ¶172

POSITA would have understood (or at a minimum found obvious) **Dua** discloses the stretch yarn constitutes at least 5% by mass of the knitted element because Dua discloses sections, such as the instep section, can be “knit with a stretch

¹¹ *See, e.g.*, Podhajny, [0035] (disclosing upper with polyester covered spandex yarn).

yarn.” ’762, 4:17-38, 6:12-29; Dua, [0023]. **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 ¶173.

- z. [12] 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], [7]. 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 [7]), 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 ¶174.

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 ¶175.

- aa. [13] A shoe as set forth in claim 7 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 [7]. **Dua** renders obvious the covered spandex yarn (*see* [7]) has a linear density of between about 120 denier and about 180 denier, and wherein the hot melt yarn (*see* [7]) 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* ¶176.

’511 does not disclose 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 a minimum found obvious) **Dua**’s disclosures thus include covered spandex yarn that has a linear density of between about 120 denier and about 180 denier, and hot melt yarn that has a linear density of between about 80 denier and about 120 denier. *Adanur* ¶177. 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* ¶177. Additionally, 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.¹² Adanur ¶177.

- bb. [14] 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 [1], [8]. Adanur ¶178.

- cc. [16] A shoe as set forth in claim 15 wherein the first type of knit structure is a jersey stitch knit and the second type of knit structure is a pointelle stitch knit.**

See [6], [15]. Adanur ¶179.

- dd. [22] A method as set forth in claim 21 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 [7], [12], [21]. Adanur ¶180.

¹² *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)).

- ee. [23] A method as set forth in claim 22 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 [22]. **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** ¶181.

For example, **Dua** discloses “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” the “yarns that incorporate thermoplastic polymer materials” fuses those yarns to “adjacent yarns, filaments, or fibers.” **Dua**, [0043]; **Adanur** ¶182.

4. Analysis of Related Claims 15, 17-21

Claims 15 and 17-21 recite limitations similar to or the same as claims 1-6. **Adanur** ¶183.

a. [15.a.i]

[15.a.i] is the same as [1.c.vi]-[1.c.vii], except [15.a.i] starts with “a shoe as set forth in claim 1, wherein,” as it is a dependent claim to claim 1. **Adanur** ¶184.

b. [15.a.ii]

[15.a.ii] is substantively the same as [1.d], except [15.a.ii] describes the

lines of broguing as “boundary line[s]” rather than “line[s] of broguing” as [1.d] describes. Adanur ¶185.

c. [17.pre]-[17.b], [20.pre], and [21.pre]

[17.pre]-[17.b] are identical to **[1.pre]-[1.b]**. **[20.pre]** and **[21.pre]** are similar to **[1.pre]-[1.b]** except they recite “a method of manufacturing” (both) of “an upper for an article of footwear” ([20.pre]), and “article of footwear having a knitted upper and a sole” ([21.pre]), instead of “a shoe” including “knit upper” and “a sole secured to the upper.” Adanur ¶186.

Dua discloses the knit upper may “be manufactured through a flat knitting process” or other knitting techniques. Dua, [0017], [0020], [0034]. Adanur ¶187.

d. [17.c.i], [21.a.i] and [20.a.i]

[1.c.i] and **[17.c.i]** are identical. **[20.a.i]** and **[21.a.i]** recite the same substantive features as **[1.c.i]** (i.e., “a knitted element” of an “upper” that is “of a unitary one-piece construction” and knit on “a knitting machine) with minor differences in phrasing and are met for the same reasons. Adanur ¶188.

e. [17.c.ii], [20.a.ii], and [21.a.ii]

[17.c.ii], **[20.a.ii]**, and **[21.a.ii]** are identical to **[1.c.ii]**. Adanur ¶189.

f. [17.c.iii], [20.a.iii] and [21.a.iii]

[1.c.iii] and **[17.c.iii]** are identical. **[20.a.iii]** and **[21.a.iii]** recite the same substantive features except they do not recite the regions of the knitted element are

“knitted.” Adanur ¶190.

g. [17.c.iv], [20.b], and [21.b]

[17.c.iv] is identical to [1.c.iv]. [20.b] and [21.b] are the same as [1.c.iv] except the word “process” is used in place of “step,” and [20.b] specifies “knitted” regions. Adanur ¶191.

h. [17.c.v], [20.a.iv]

[17.c.v] is included within [1.d] (e.g., “line of holes...extending forward...to the upper toe region” “during the knitting process.”). The limitations of [20.a.iv] are substantively the same as [17.c.v]: both claim a “line of broguing comprising a line of holes,” except [20.a.iv] prefaces this limitation with “the knitted element including a line of broguing,” because [20.a.iv] relates to a method, while [17.c.v] relates to an article of manufacture. The limitations are met for the same reasons. Adanur ¶¶192-193.

i. [17.c.vi] and [20.a.vi]

[17.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 being at least in the upper toe region, the second area being at least in the upper lateral and medial metatarsal regions, the line of broguing being adjacent a rear boundary of the first area, the line of broguing being adjacent a forward boundary of the second

area”) is substantively a combination of limitations recited in [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,”) and [4] (“the medial and lateral lines of broguing being adjacent a rear boundary of the first area, the medial and lateral lines of broguing being adjacent a forward boundary of the second area”) and is met for the same reasons. **Dua** discloses the first area is in the toe region. *See* [4] (annotated Fig. 6). Adanur ¶194.

The limitations of [20.a.vi] (“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 line of broguing being adjacent a rear boundary of the first area, the line of broguing being adjacent a forward boundary of the second area”) are within [17.c.vi] (which is met for the reasons above), except [20.a.vi] relates to a method of manufacture, rather than an article of footwear. *See* [17.c.vi]. The limitations are met for the same reasons. Adanur ¶195.

j. [20.a.v] and [21.a.iv]

[20.a.v] is identical to [1.c.vi]. Adanur ¶196.

[21.a.iv] is recited as part of [17.c.vi] except [21.a.iv] specifies the first area is a “jersey stitch knit” and the second area is a “pointelle stitch knit,” which is recited in [6] and [16] and met for the same reasons. Adanur ¶197.

k. [18]

[18] is identical to [6] and [16]. Adanur ¶198.

l. [19]

[19] is identical to [5]. Adanur ¶199.

m. [20.c]

[20.c] (“the upper toe region being knitted with the line of broguing during the knitting step”) is substantively the same as [1.d.i] (“the upper toe region...being knitted with the wingtip pattern during the knitting step”) and met for the same reasons. Adanur ¶200.

n. [20.d], [21.c]

[20.d] (“the first and second areas being knitted during the knitting step”) is substantively the same as [17.c.vi] (“a first and second area”), and [17.c.iv]-[17.c.v] (requiring the knitting of these regions “during the knitting process”) and met for the same reasons. Adanur ¶201.

[21.c] is identical to [20.d]. Adanur ¶202.

o. [21.a.v]

[21.a.v] is substantively the same as [1.b], except it uses the word “attaching” instead of “secured,” and is met for the same reasons. Adanur ¶203.

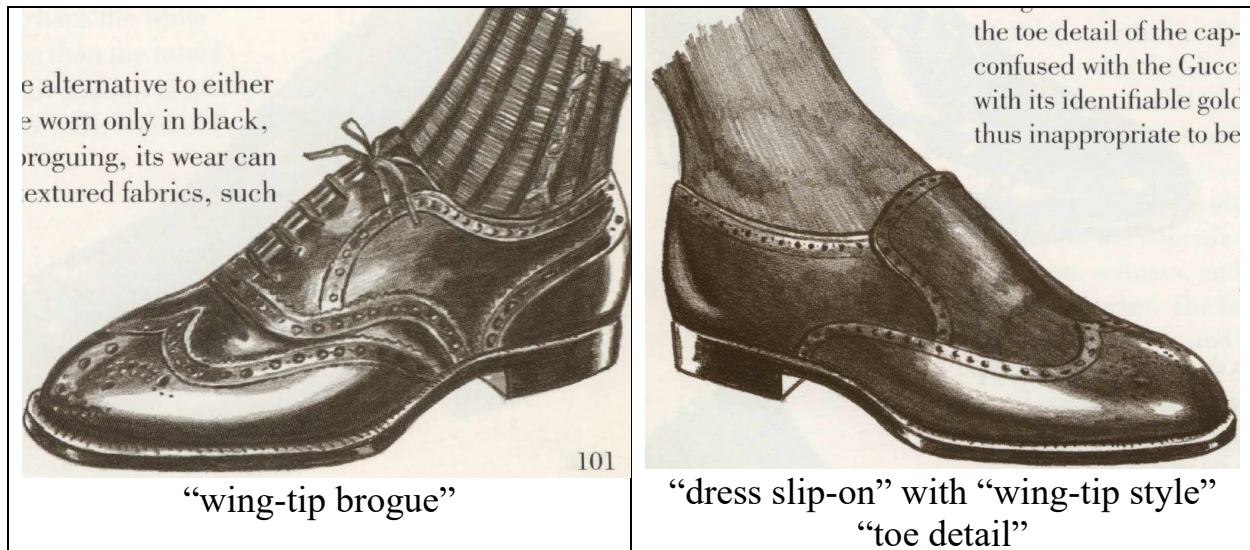
B. Grounds 3-4: Dua in view of Flusser or Dua in view of '762/'288 and Flusser (Claims 1-20)

As explained (§IX.A), **Dua** discloses or at least renders obvious claims 1-20.

To the extent further disclosure is required for “wingtip pattern” and/or “broguing,” these are disclosed by **Flusser** and these teachings would have been obvious to apply to **Dua**. Adanur ¶204.

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 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 ¶¶205-208.

2. Motivation to Apply Flusser’s Teachings to Dua

Dua and **Flusser** are analogous art, in the same field as ’511, which includes footwear design, and are reasonably pertinent to purported problems addressed by

the named inventors of '511 involving the improvement of the design of dress shoes. '511, 1:25-29, 3:23-25, 4:57-60; Dua, [0001]-[0004], [0015]; Flusser, 99-104; Adanur ¶209.

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 of dress shoes disclosed in **Flusser**.¹³ Dua, [0015]; '762, 7:63-8:5; Flusser, 101-104. Adanur ¶210.

Additionally, 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 the cap-toe, wing-tip, slip-on/dress loafer, monk-strap, suede, tassel loafer, and summer shoes having various ornamental designs including a plain toe, a cap-toe (with or without broguing and/or a "perforated" "medallion"), and wing-tip pattern. Adanur ¶211. Thus, POSITA would have found it obvious to try the well-known wingtip dress shoe

¹³ The styles/designs in **Flusser** remained the same until at least '511's priority date. Ex.1047, 193-208; Adanur ¶210.

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 shoe. **Dua**, [0015]; Adanur ¶211. 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]). Adanur ¶¶210-211.

Accordingly, POSITA would have had a reasonable expectation of success applying **Flusser**'s teachings to **Dua**'s knit upper, and POSITA would have known the combination (yielding the claimed limitations) would predictably work and provide the expected results.¹⁴ Adanur ¶212.

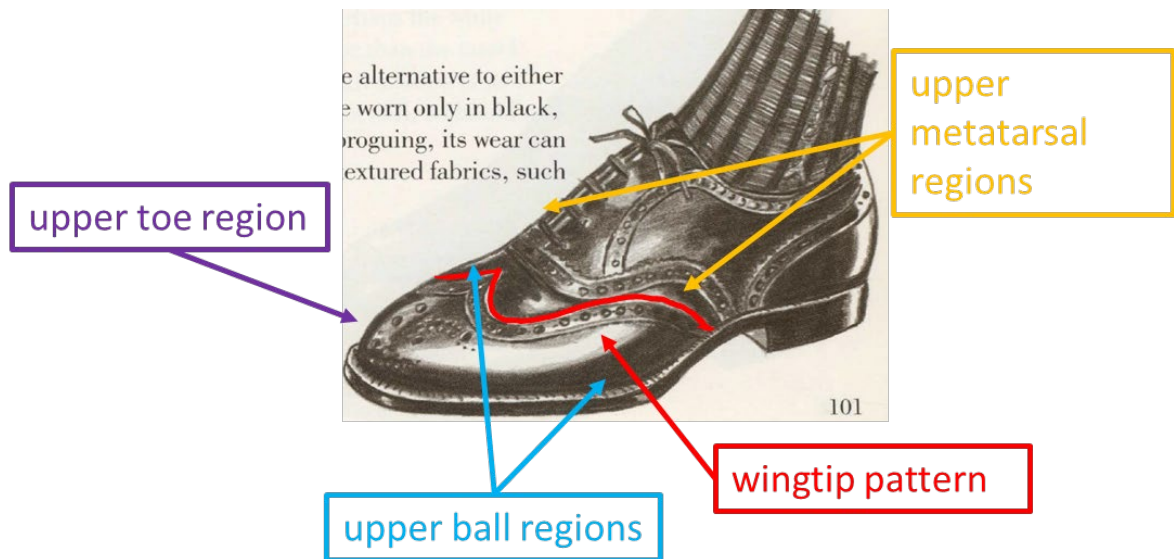
3. Claims 1-20

As explained (§IX.A.3-4), **Dua** renders obvious claims 1-20. 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 ¶213.

¹⁴ 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).

a. [1.c.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; wingtip pattern, which includes “decorative perforations along the seams and curved toe cap section”). Flusser, 101-102. Adanur ¶214.



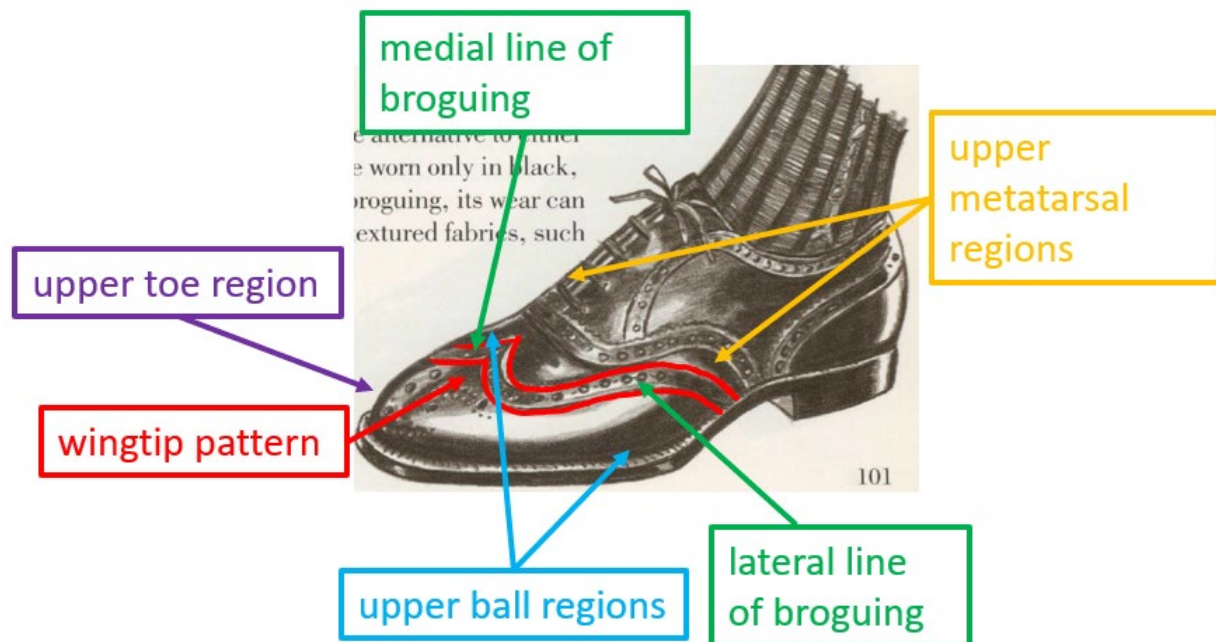
Flusser, 101.

b. [1.d.i]

See [1.c.ii-1.c.v]. Flusser discloses the **upper toe region, the upper lateral and medial ball regions, and the upper lateral and medial metatarsal regions** with the **wingtip pattern** (e.g., annotated image below; wingtip pattern, which includes “decorative perforations along the seams and curved toe cap section”).

Flusser, 101-102. Adanur ¶215

As explained (§IX.B.2 and [1.c.v](G1-2), [1.d.i](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 ¶216.



Flusser, 101.

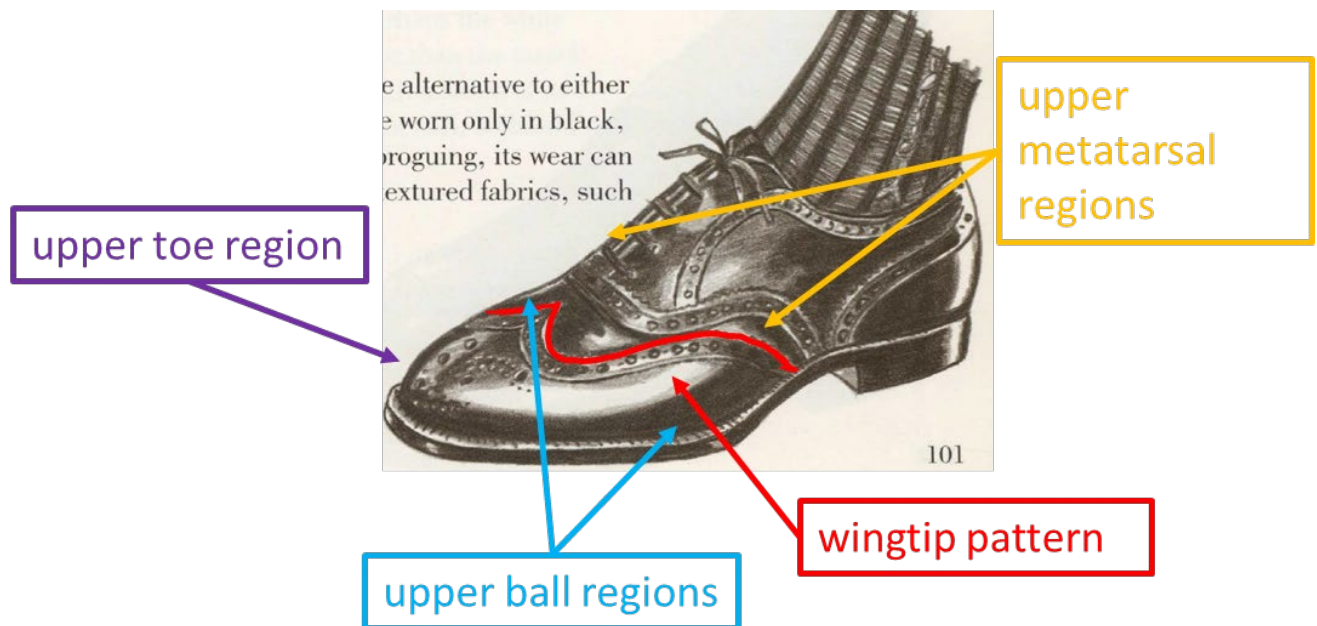
c. [1.d.ii]

See [1.d.i], [1.c.ii-1.d.i](G1-2). Flusser discloses the **wingtip pattern comprising a medial line of broguing and a lateral line of broguing** (see, e.g., Flusser, 101 annotated in [1.d.i]). It would have been obvious to apply these teachings to Dua for the reasons discussed in [1.d.i]. Adanur ¶217.

d. [1.d.iii]

See [1.c.v], [1.d.i-1.d.iii](G1-2). Flusser discloses **the upper toe region**, **the upper lateral and medial ball regions**, and **the upper lateral and medial metatarsal regions** (e.g., annotated image below). Flusser, 101. Adanur ¶218.

As explained (§IX.B.2 and [1.c.v](G1-2)), **Dua** discloses the regions knitted with lines of broguing, and it would have been obvious to try **Flusser's** well-known wingtip pattern and to apply these teachings to **Dua**; meeting this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶219.

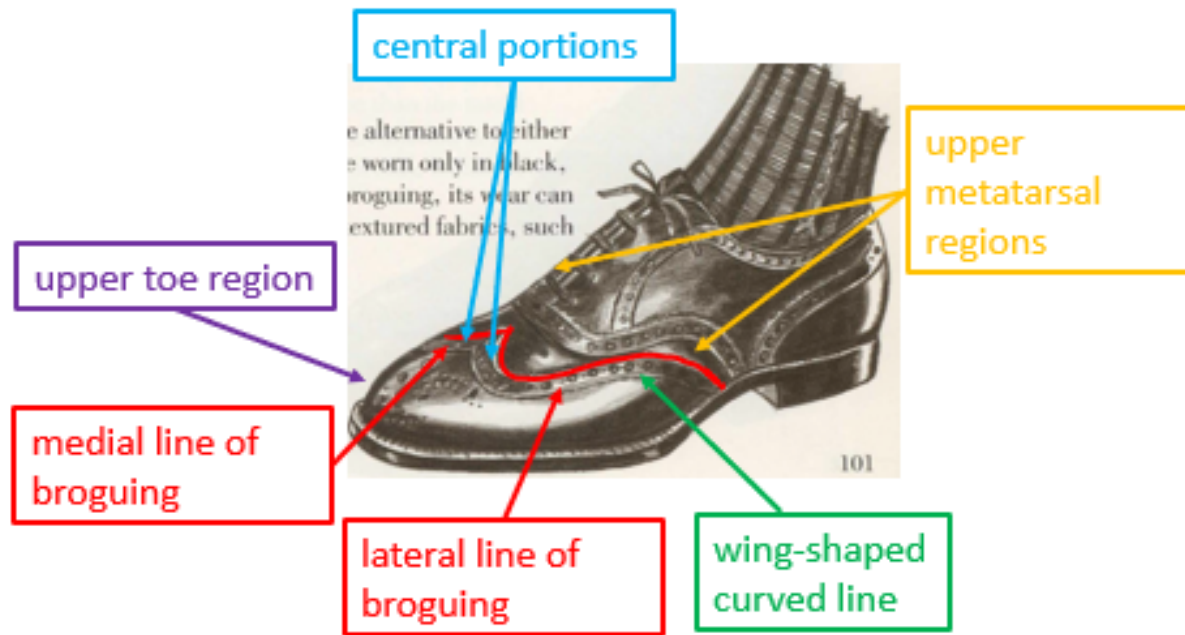


Flusser, 101. Adanur ¶219

e. [1.d.iv]-[1.d.v]

See [1.c.v], [1.d.iii], [1.d.i]-[1.d.iii](G1-2). Flusser discloses **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** (e.g., annotated image below). Flusser, 101. Adanur ¶220.



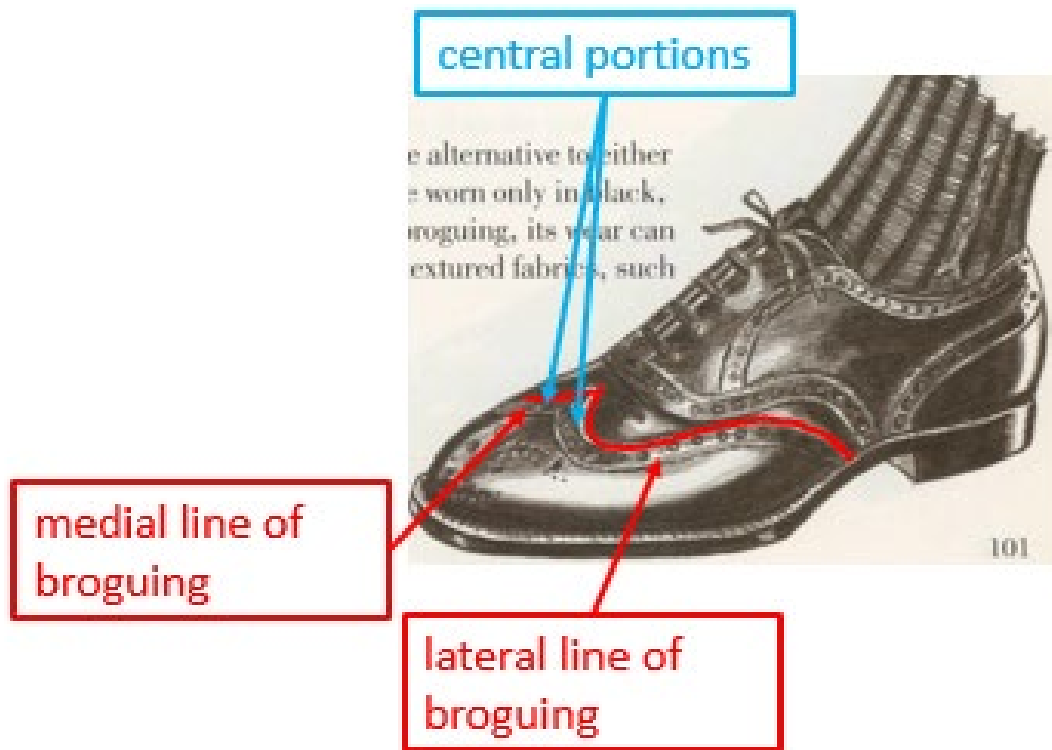
Flusser, 101. Adanur ¶220.

See §IX.B.2 and [1.c.v](G1-2) (discussing it would have been obvious to try **Flusser's** well-known wingtip pattern applied to **Dua**). Adanur ¶220-221.

f. [1.d.vi]

See [1.c.v], [1.d.iii]-[1.d.v], [1.d.i-1.d.vi](G1-2). Flusser discloses 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 (e.g., annotated image below). Flusser, 101-102. Adanur ¶222.



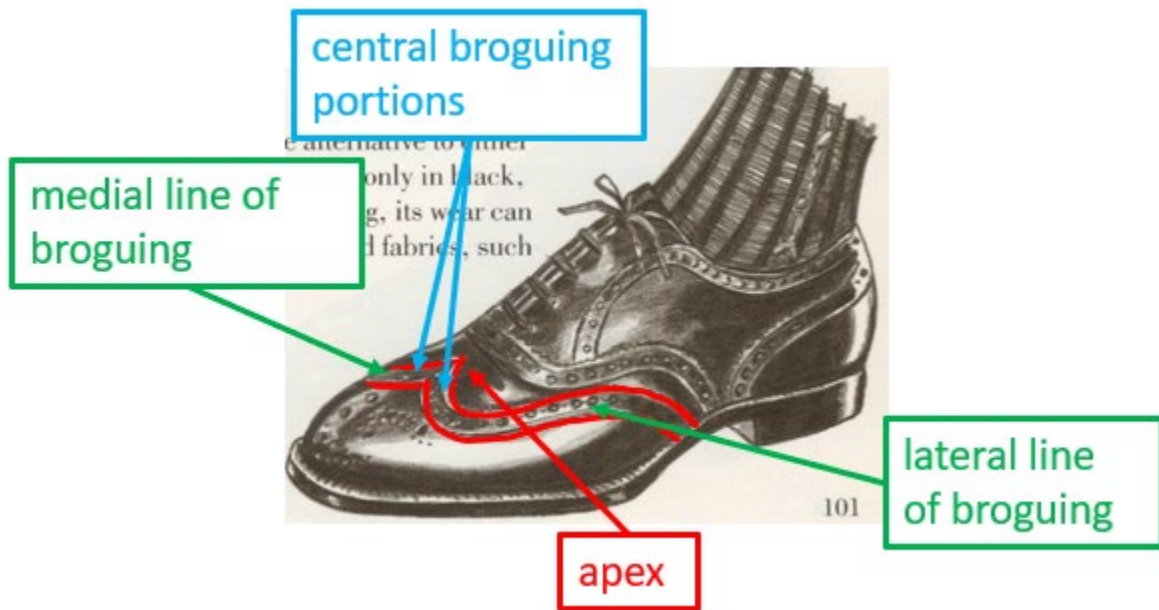
Flusser, 101. Adanur ¶¶222-223.

As explained (§IX.B.2 and [1.d](G1-2)), it would have been obvious to try **Flusser's** well-known wingtip pattern and to apply these teachings to **Dua**; meeting this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶223.

g. [2]

See [1.c.v], [1](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 ¶224.

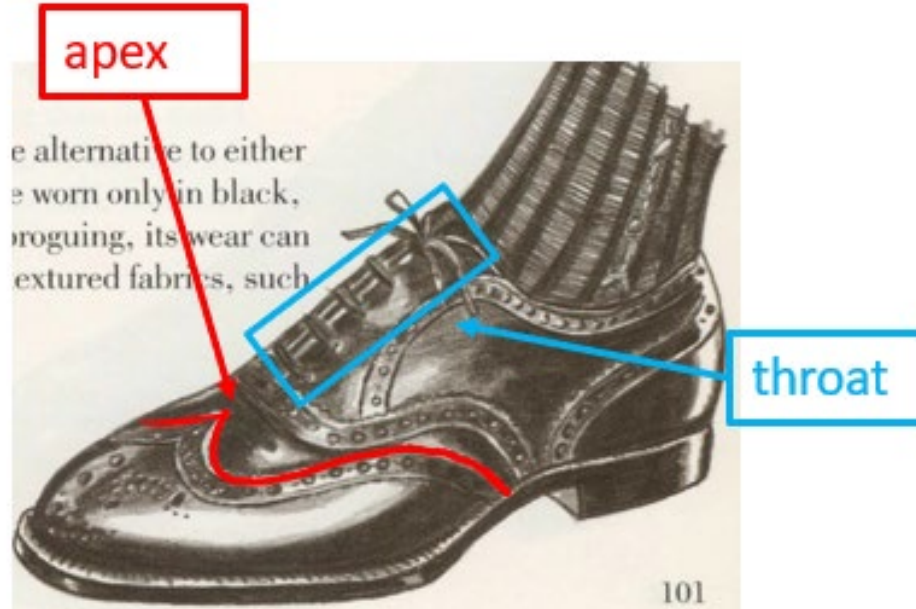


Flusser, 101. Adanur ¶¶224-225.

As explained (§IX.B.2 and [2](G1-2)), it would have been obvious to try **Flusser's** well-known wingtip pattern and obvious to apply these teachings to **Dua**, meeting this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶225.

h. [3]

See [2], [2](G1-2). Flusser discloses the upper further comprises a **throat**, and wherein **the apex** points toward **the throat** (e.g., *see* annotated Fig. 6 below). Adanur ¶226.

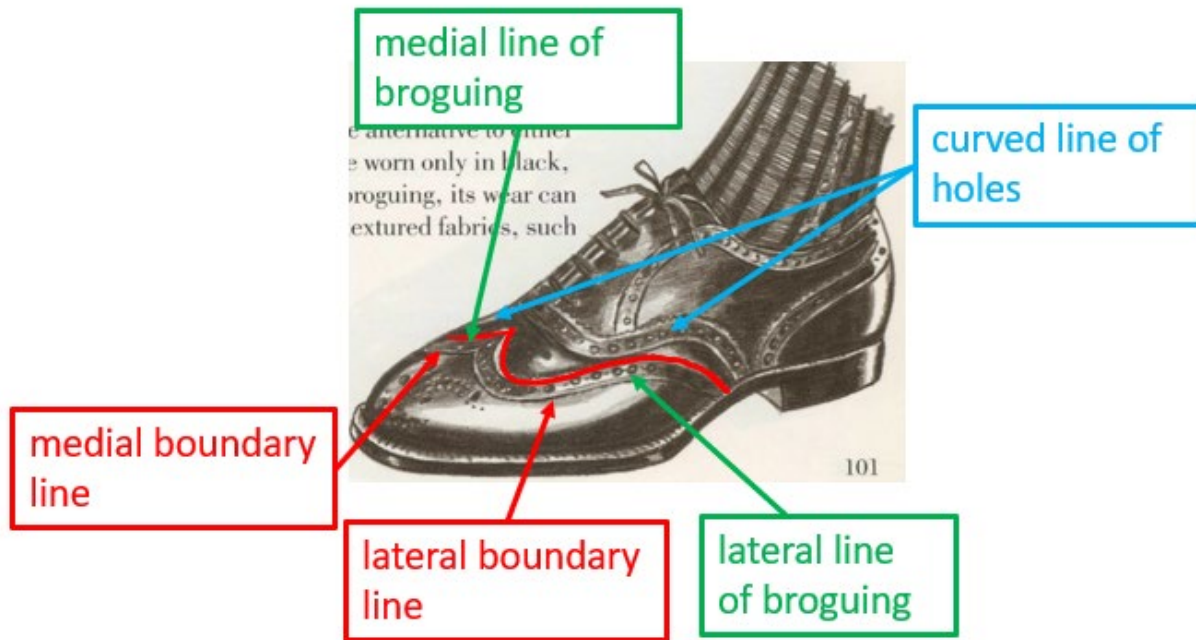


Flusser, 101. Adanur ¶¶226-227.

As explained (§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**; meeting this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶227.

i. [4]

See [1]. Flusser discloses the **medial and lateral lines of broguing** being adjacent a rear boundary of the first area, the medial and lateral lines of broguing being adjacent a **forward boundary** of the second area (*e.g.*, annotated image below). Flusser, 101. Adanur ¶228.



Flusser, 101. Adanur ¶¶228-229.

As explained (§IX.B.2 and [20](G1-2)), **Dua** discloses the knitted element comprising a first and second area (*see* [1.c.vi]), the medial and lateral lines of broguing being adjacent a rear boundary of the first area, the medial and lateral lines of broguing being adjacent a forward boundary of the second area, and it would have been obvious to try **Flusser's** well-known wingtip pattern and obvious to apply these teachings to **Dua**, and meeting this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶229.

j. [7]-[14], [16]

See §§IX.A.3 (how Dua discloses/renders obvious these limitations/claims).
Adanur ¶230.

k. Remaining Claims 15, 17-20

See §§IX.A.4 (overlap between limitations/claims and claims 1-6 and how they are met). Adanur ¶231.

C. Grounds 5 and 6: Dua in view of Litke or Dua in view of '762/'288, and Litke (Claims 1-20)

As explained (§§IX.A-IX.B), **Dua** and **Dua** in view of **Flusser** render obvious claims 1-20. To the extent further disclosure is required for “wingtip pattern” and/or “broguing,” those features are disclosed by **Litke**, and it would have been obvious to apply its teachings to **Dua** as an alternative to **Flusser**. Adanur ¶232.

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 ¶233.

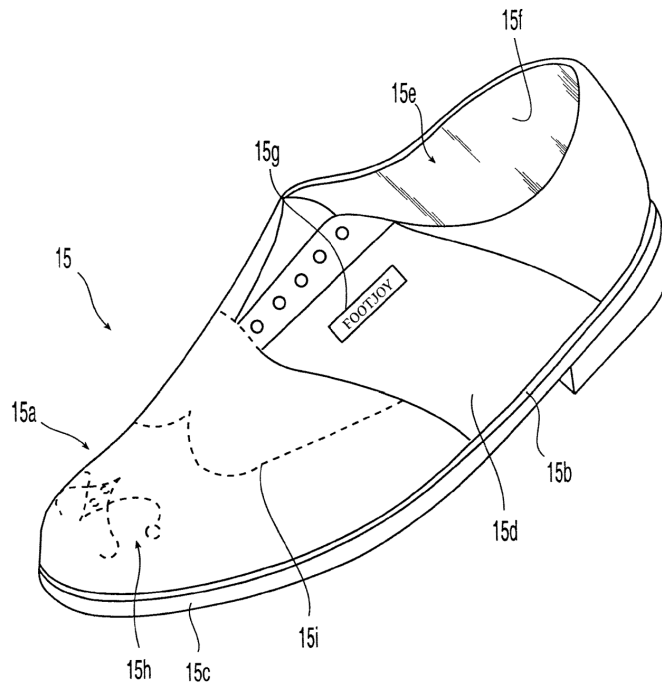


Fig. 3

Adanur ¶233.

2. Motivation to Apply Litke's Teachings to Dua

Dua and **Litke** are analogous art, in the same field as '511, which includes footwear, and are reasonably pertinent to purported problems addressed by the named inventors of '511 involving the improvement of design and manufacture of knitted uppers for shoes. '511, 1:25-29, 3:23-25, 4:57-60; **Dua**, [0001]-[0004]; **Litke**, 2:63-67; Adanur ¶234.

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 ¶235.¹⁵

Accordingly, POSITA would have had a reasonable expectation of success applying **Litke’s** teachings to **Dua’s** knit upper, and POSITA would have known the combination (yielding the claimed limitations) would predictably work and provide the expected results. Adanur ¶236.

3. Claims 1-20

As explained (§§IX.A and IX.B), both **Dua** and **Dua** in view of **Flusser** discloses or at least renders obvious claims 1-20. 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 ¶237.

a. [1.c.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., annotated Fig. 3 of **Litke** below). Adanur ¶238.

For example, **Litke** discloses a plurality of patterns, such as a pattern “applied

¹⁵ See also **Flusser**, 101-104.

or formed on the materials” using “stitching [or] holes.” Litke, 6:17-20. Fig. 3 illustrates a wingtip pattern 15i. Adanur ¶239.

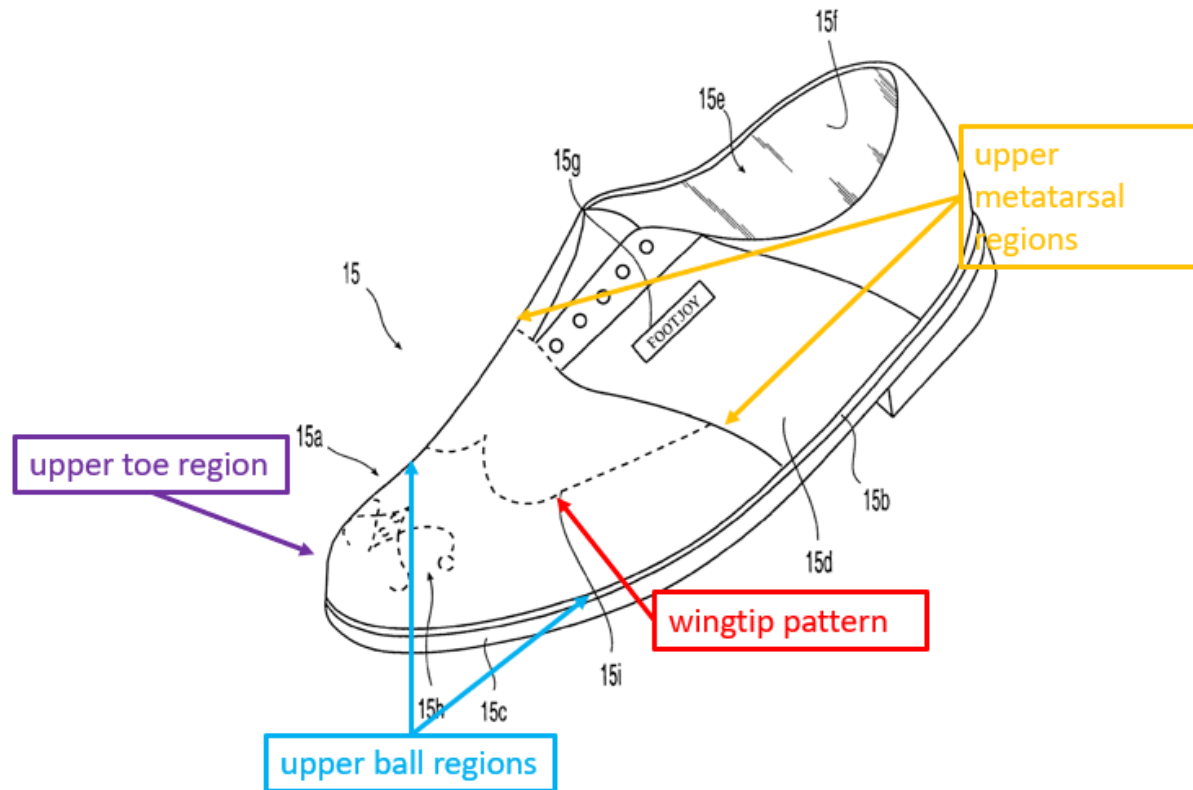


Fig. 3

Litke, Fig. 3. Adanur ¶¶238-240.

As explained (§IX.C.2 and [1.c.v](G1-2)), it would have been obvious to apply **Litke’s** teachings of teachings of a wingtip pattern, to **Dua’s** patterned knitted upper because it would provide a knitted upper for a dress shoe, as taught by **Dua**, with the wingtip design disclosed in **Litke**. Adanur ¶240.

b. [1.d.i]

Litke discloses the upper toe region, the upper lateral and medial ball

regions, and the upper lateral and medial metatarsal regions collectively being knitted with the wingtip pattern during the knitting process (e.g., annotated image below; wingtip pattern, which includes “decorative perforations along the seams and curved toe cap section”). Adanur ¶241.

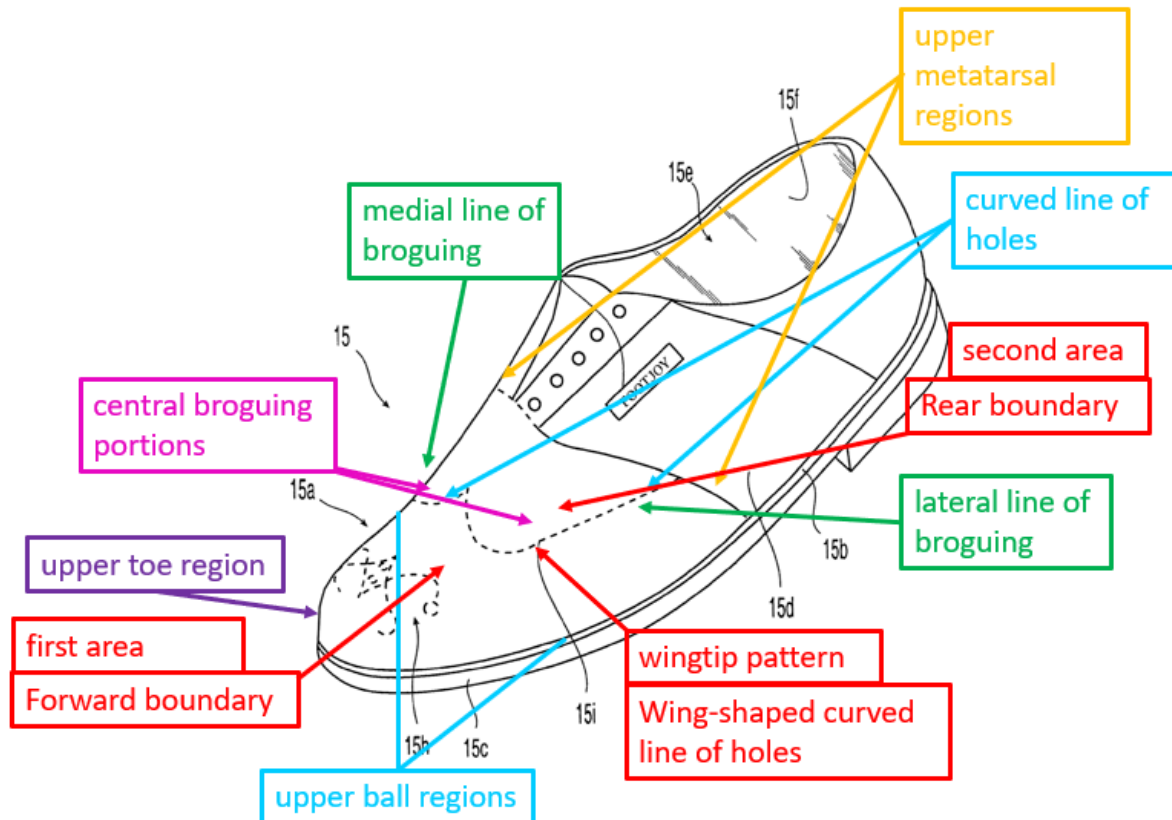


Fig. 3

Litke, Fig. 3. Adanur ¶¶241-242.

As explained (§IX.C.2), it would have been obvious to POSITA to apply Litke’s teachings of teachings of a wingtip pattern, as defined by lines of broguing, to Dua’s patterned knitted upper. Adanur ¶242. Dua discloses the knitted element being knitted with lines 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), to **Dua's** patterned knitted upper, modified in view of **Litke** to include a wingtip pattern, because it would result in a knitted upper for a dress shoe, as taught by **Dua**, with the popular, well-known wingtip shoe design including lines of broguing disclosed in **Litke**. Dua, [0015]; '762, 7:63-8:5; Litke, 6:17-20; Adanur ¶242.

c. [1.d.ii]

See [1.d.i], [1.d.i](G1-2). Litke discloses the **wingtip pattern** comprising a **medial line of broguing and a lateral line of broguing** (e.g., annotated Fig. 3 of Litke in [1.d.i]). Adanur ¶243.

As explained (§IX.C.2), it would have been obvious to POSITA to apply **Litke's** teachings of teachings of a wingtip pattern, as defined by lines of broguing, 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 including lines of broguing disclosed in **Litke**. Dua, [0015]; '762, 7:63-8:5; Litke, 6:17-20; Adanur ¶244.

d. [1.d.iii]

See [1.d.i]-[1.d.ii], [1.d.i]-[1.d.ii](G1-2). Litke discloses 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 (e.g., annotated Fig. 3 of Litke in [1.d.i]). Adanur ¶245.

As explained (§IX.C.2), it would have been obvious to POSITA to apply **Litke's** teachings of teachings of a wingtip pattern, to **Dua's** patterned knitted upper. The results are displayed in Fig. 3 ([1.d.i]), illustrating the medial and lateral lines of broguing in the claimed areas. Dua, [0015]; '762, 7:63-8:5; Litke, 6:17-20; Adanur ¶246.

e. [1.d.iv]

See [1.d.i]-[1.d.iii], [1.d.i]-[1.d.iii](G1-2). Litke discloses 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** (e.g., annotated Fig. 3 of Litke in [1.d.i]). Adanur ¶247.

As explained (§IX.C.2), it would have been obvious to POSITA to apply **Litke's** teachings of teachings of a wingtip pattern, to **Dua's** patterned knitted upper. The results are displayed in Fig. 3 ([1.d.i]), illustrating the wingtip fashion as a wing-shaped wingtip curved line of holes (broguing) in the claimed arrangement. Dua, [0015]; '762, 7:63-8:5; Litke, 6:17-20; Adanur ¶248

f. [1.d.v]

See [1.d.i]-[1.d.iv], [1.d.i]-[1.d.iv](G1-2). Litke discloses 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** (*e.g.*, annotated Fig. 3 of Litke in [1.d.i]). Adanur ¶249.

As explained (§IX.C.2), it would have been obvious to POSITA to apply **Litke's** teachings of teachings of a wingtip pattern, to **Dua's** patterned knitted upper. The results are displayed in Fig. 3 ([1.d.i]), illustrating the wingtip (wing-shaped curved line of holes) in the claimed arrangement. Dua, [0015]; '762, 7:63-8:5; Litke, 6:17-20; Adanur ¶250.

g. [1.d.vi]

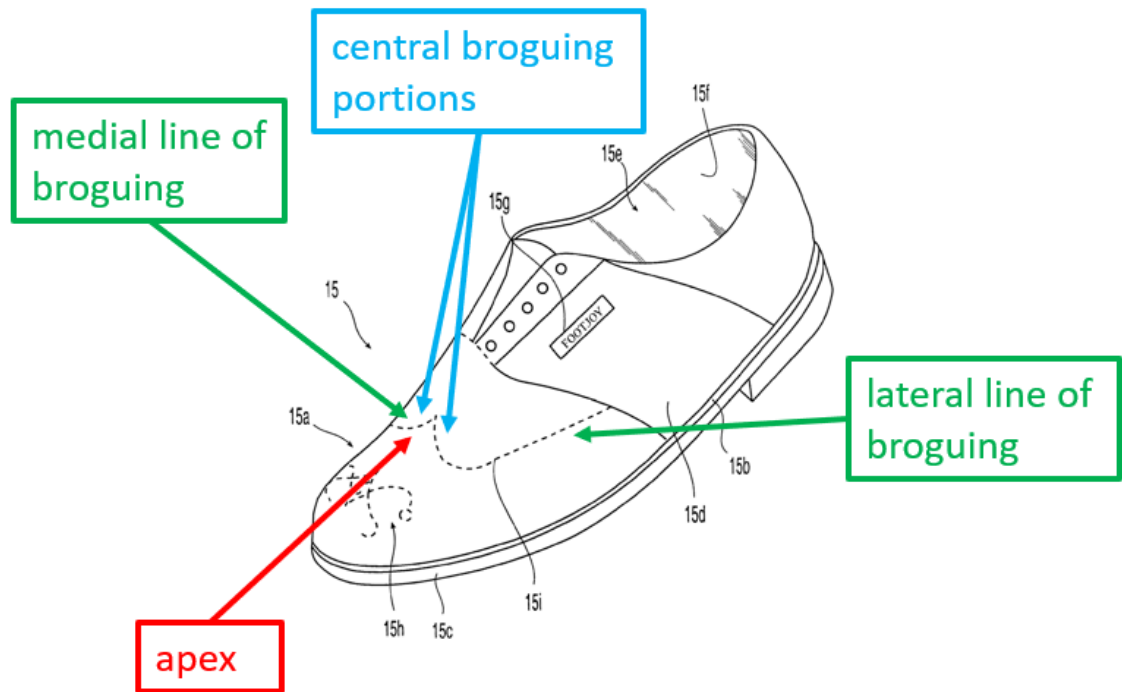
See [1.d.i]-[1.d.v], [1.d.i]-[1.d.v](G1-2). Litke discloses the **rearwardly extending central broguing portion** of the **medial line of broguing** converging toward the **rearwardly extending central broguing portion** of the **lateral line of broguing** (*e.g.*, annotated Fig. 3 of Litke in [1.d.i]). Flusser, 101-102. Adanur ¶251.

As explained (§IX.C.2), it would have been obvious to POSITA to apply **Litke's** teachings of teachings of a wingtip pattern, to **Dua's** patterned knitted upper. The results are displayed in Fig. 3 ([1.d.i]), illustrating the wingtip (broguing holes and portions) in the claimed arrangement. Dua, [0015]; '762, 7:63-8:5; Litke, 6:17-20; Adanur ¶252.

h. [2]

See [1], [1](G1-2). Litke discloses the **central broguing portions of the**

medial and lateral lines of broguing meet at a rearwardly pointing apex (e.g., annotated Fig. 3 below). Adanur ¶253.



Litke, Fig. 3. Adanur ¶253.

i. [3]

See [1]-[2], [1]-[2](G1-2). Litke discloses the upper further comprises a throat, and wherein the apex points toward the throat (e.g., annotated Fig. 3 below). Adanur ¶254.

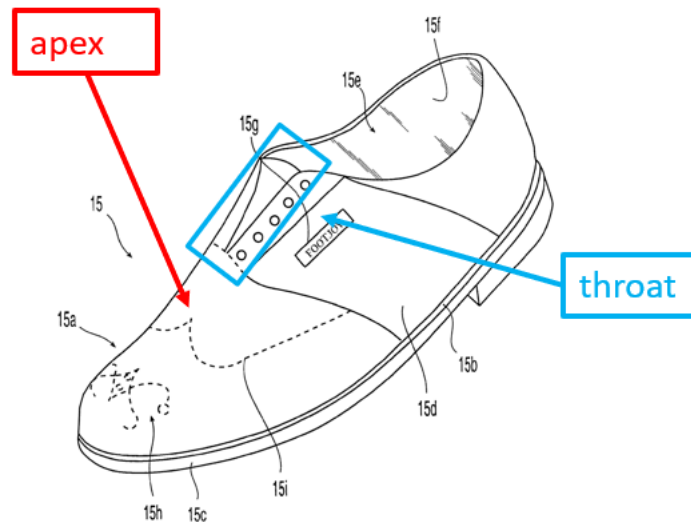


Fig. 3

Litke, Fig. 3. Adanur ¶254.

j. [4]

See [1], [4](G1-2). Litke discloses the **medial and lateral lines of broguing** being adjacent a **rear boundary of the first area**, the **medial and lateral lines of broguing** being adjacent a **forward boundary of the second area** (*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 ¶255.

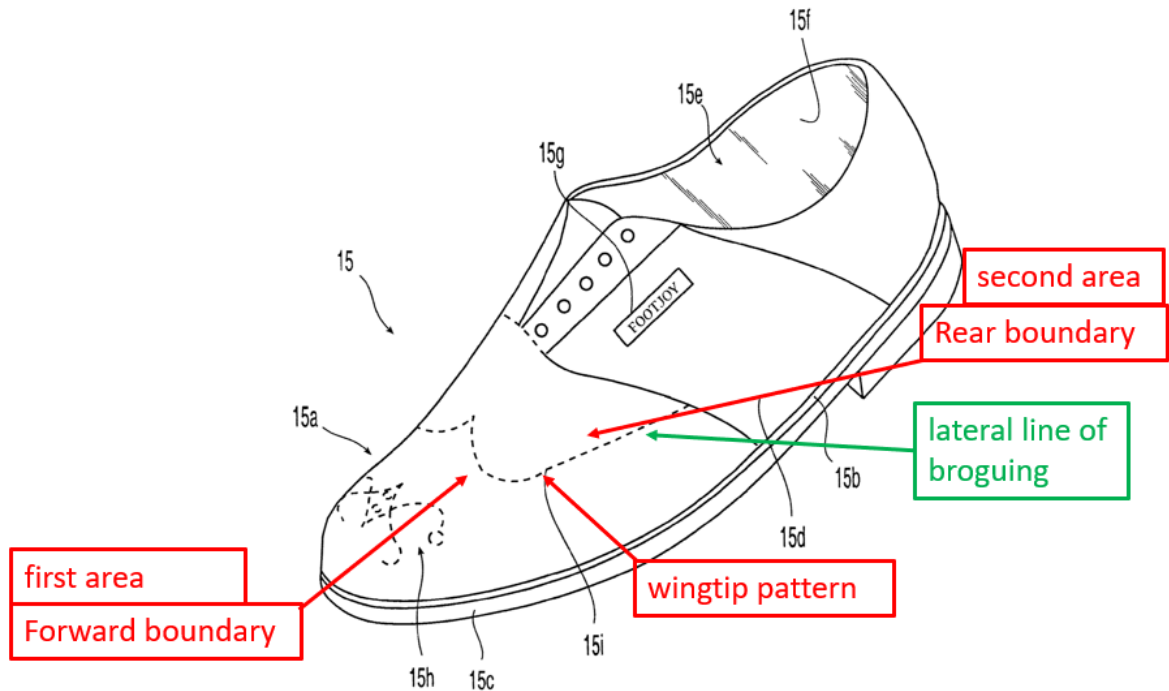


Fig. 3

Litke, Fig. 3. Adanur ¶¶255-256.

As explained (§IX.C.2, [4](G1-2)), **Dua** discloses the knitted element comprising different type of knit first and second areas, and being knitted with the medial and lateral lines of broguing (i.e., apertures/holes), 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 result in rear and forward boundaries of the areas and meet this limitation. Flusser, 101, Dua, [0015]; '762, 7:63-8:5; Adanur ¶256.

k. [5]-[20]

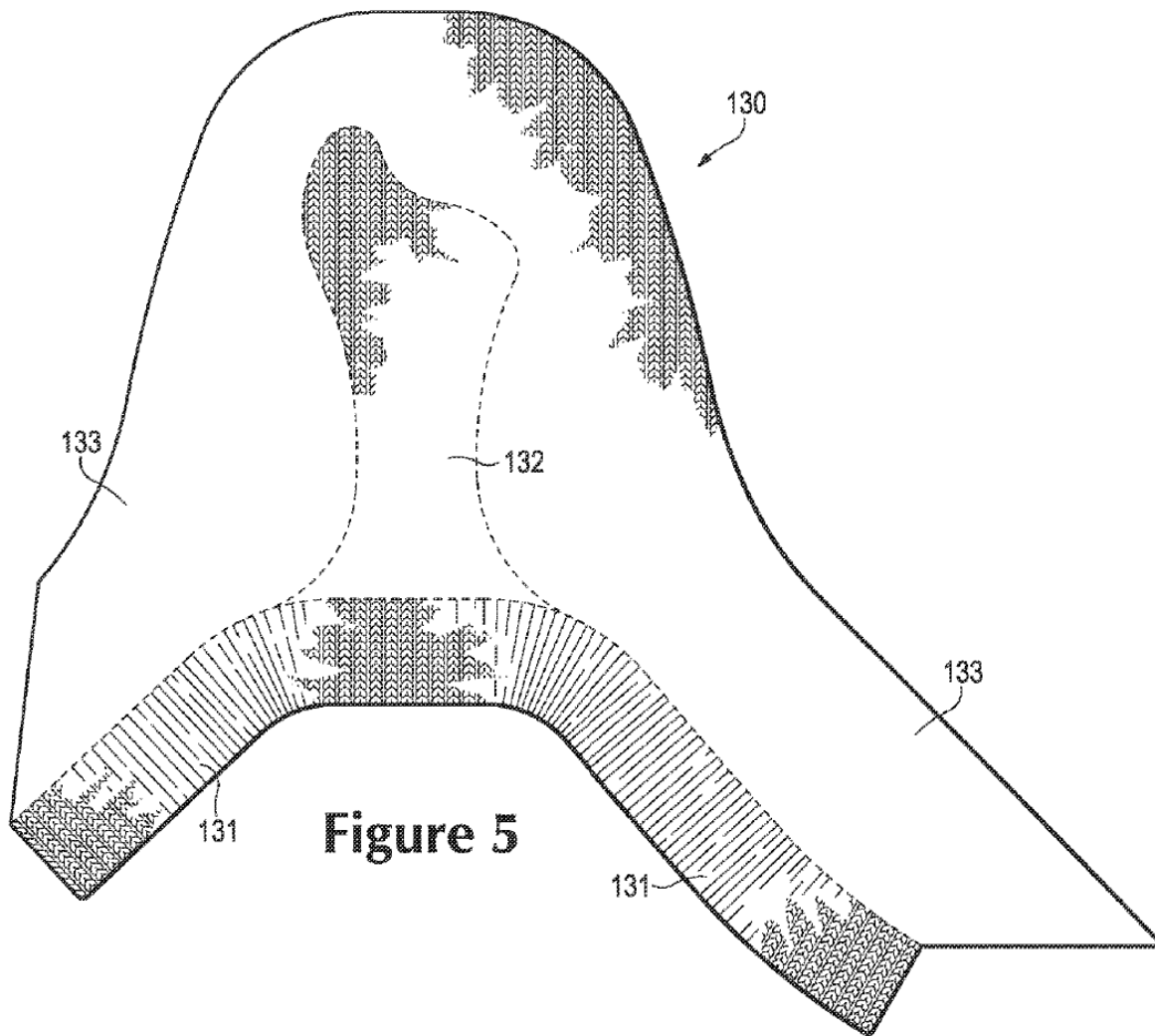
See [5]-[23](G1-2) (how Dua discloses/renderers obvious). Adanur ¶257.

D. Grounds 7 and 8: Dua in view of Podhajny or Dua in view of '762/ '288, Litke, and Podhajny (Claims 7-12, 14)

As explained (§§IX.A, IX.C), **Dua** and **Dua** in view of **Litke** renders obvious claims 1-20. To the extent additional disclosure is required, the application of **Podhajny's** teachings to **Dua** (as optionally modified by **Litke**) renders the claims 7-12 and 14 obvious. Adanur ¶258.

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 ¶259.



Podhajny, Fig. 5.

2. Motivation to Apply Podhajny's Teachings to Dua

Dua and **Podhajny** are analogous art, in the same field as '511, which includes footwear, and are reasonably pertinent to purported problems addressed by the named inventors of '511 involving the improvement of design and manufacture

of knitted uppers for shoes. '511, 1:25-29, 3:23-25, 4:57-60; Dua, [0001]-[0004]; Podhajny, [0005]; Adanur ¶260.

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 ¶261. **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**.¹⁶ Dua, [0023]. Thus, the teachings of **Podhajny's** second yarn would be applied to **Dua's** stretch yarn. Dua, [0023]; '762, 8:43-59. Adanur ¶261.

¹⁶ 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 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, [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 ¶262. **Dua** expressly contemplates using yarns like the first yarn taught in **Podhajny** in its upper, and **Dua** contemplates using "yarns that incorporate thermoplastic polymer materials" like the third yarn taught in **Podhajny**. **Dua**, [0023], [0043]; Adanur ¶262.

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 the combination (yielding the claimed limitations) would predictably work and provide the expected results. Adanur ¶263.

3. Claims 7-12, 14

As explained (§IX.D.2, ([7]-[11], [12], [14])(G1-2), and ([7]-[11], [12],

[14])(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 (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 the 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 ¶264.

a. [7]

See [7](G1-2), [7](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 in [7](G1-2). Adanur ¶265.

b. [8]

See [7], [8](G1-2), [8](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 ¶266.

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 ¶267. 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 consistent with the general denier of hot melt yarns.¹⁷ Podhajny, [0039]; Adanur ¶¶266-267.

Given these deniers correspond to mass of the knitted element, the covered

¹⁷ *See, e.g.*, Blakely, [0092] (disclosing hot melt yarn having denier between 33-300).

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 ¶268. 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 the main to the collar, the main will be significantly larger than the collar and thus more of the hot melt yarn will be used than the 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 ¶268.

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]. Additionally, '511 does not treat any of these ranges as "critical" and thus the broad overlapping disclosures of **Podhajny** satisfy the limitations for claims 7-11. Adanur ¶269.

c. [9]

See [8], [9](G1-2), [9](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* [8]. Adanur ¶270.

d. [10]

See [9], [10](G1-2), [10](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* [8]. Adanur ¶271.

e. [11]

See [10], [11](G1-2), [11](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* [8]. Adanur ¶272.

a. [12]

See [7], [10], [1](G1-2), [7](G1-2), [12](G1-2). Dua in view of Podhajny renders obvious **the knitted element comprises polyester 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** (*see* [7], [7](G1-2)), **the hot melt yarn being knitted with the polyester 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]. Adanur ¶273.

As discussed in [12](G1-2), **Dua discloses knitted element comprising polyester yarn** (*e.g.*, “knitted component 40 may incorporate various yarn types” including “polyester”). Dua, [0024]. As discussed in [7]-[8], **Podhajny discloses the knitted element comprising hot melt yarn** (*e.g.*, 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 polyester 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 polyester yarn being knitted with one another for the reasons in [7](G1-2). Adanur ¶274.

b. [14]

See [8], [8](G1-2), [14](G1-2). **Dua in view of Podhajny disclose this element for the same reasons in [8], [8](G1-2), [14](G1-2).** Adanur ¶275.

E. Grounds 9 and 10: Dua in view of Blakely or Dua in view of '762/'288, Litke, and Blakely (Claim 13)

As explained (§§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 13 obvious.**

Adanur ¶276.

See [13] (G1-2). 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 a thermoplastic polyurethane with linear density between “100 and 300 denier” or “33 to 100 denier”). Blakely, [0092]. Adanur ¶277.

Blakely discloses a knitted fabric for use in an article of apparel, such as footwear, including a first, second, and third yarn. Blakely, [0043], [0082], [0092]. The first and second yarns may comprise “thermoplastic polyurethane (TPU)” and the third yarn “is comprised of an elastomer material such as spandex or another material comprising elastane fibers.” Blakely, [0092]. The first yarn has a linear density between 100 and 300 denier, the second between 33 and 100 denier, and the third between 50 and 150 denier. Blakely, [0092]. Adanur ¶278

Dua and **Blakely** are analogous art, in the same field as ’511, which includes footwear design, and are reasonably pertinent to purported problems addressed by the named inventors of ’511 involving knitted fabrics for shoe uppers. ’511, 1:25-29, 3:23-25, 4:57-60; Dua, [0001]-[0004], [0015]; Blakely, [0043], [0082], [0092]; Adanur ¶279.

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 ¶280. 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 ¶¶276-280.

X. SECONDARY CONSIDERATIONS

There is no evidence in '511's prosecution or elsewhere supporting secondary considerations, or evidence of nexus to any Claims. See *generally* '511FH; Adanur, ¶281. As demonstrated by the prior art herein, any purported solutions to problems or unexpected results in '511 were already well known. Adanur, ¶ 282-283.

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, ¶¶284-289. There is a reasonable likelihood Petitioners will prevail as to each Claim. IPR of Claims 1-23 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 certify 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 13,980 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. 10,327,511 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