

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NEW BALANCE ATHLETICS, INC.,
Petitioner,

v.

NIKE, INC.,
Patent Owner.

Case IPR2024-00778

Patent 8,266,749

DECLARATION OF DAVID BROOKSTEIN, Sc.D.

TABLE OF CONTENTS

I.	BACKGROUND AND QUALIFICATIONS.....	1
II.	LEGAL PRINCIPLES	4
A.	Prior Art.....	5
B.	Person of Ordinary Skill in the Art	5
C.	Claim Construction	5
D.	Anticipation	7
E.	Obviousness.....	8
III.	LEVEL OF ORDINARY SKILL IN THE ART	9
IV.	TECHNOLOGY BACKGROUND.....	10
A.	History of Knitting	11
B.	Knitting Basics	11
C.	Knitting Machines	16
1.	Warp Knitting Machines.....	17
2.	Weft Knitting Machines.....	22
V.	THE '749 PATENT	27
A.	Overview of the '749 Patent.....	27
B.	Claims of the '749 Patent	33
C.	Prosecution History of the '749 Patent	34
D.	adidas IPR.....	35
E.	lululemon IPR.....	35
VI.	CLAIM CONSTRUCTION.....	36
A.	“unitary construction” (Claims 11 and 21)	37

TABLE OF CONTENTS

(cont'd)

	Page No.
B. “a first area and a second area with a unitary construction” (Claims 11 and 21)	37
C. “wide-tube circular knitting machine” (Claims 9 and 19)	37
D. “impart” (Claims 11 and 21)	38
E. “texture” (Claims 8, 11, and 21)	38
F. Other Terms.....	38
VII. OVERVIEW OF THE PRIOR ART	39
A. U.S. Patent No. 2,440,393 to Clark, et al.	39
B. G.B. Patent No. 228,917 to Müller	44
C. U.S. Patent No. 6,299,962 to Davis et al.....	45
D. G.B. Patent No. 500,2300 to Mills.....	47
E. U.S. Patent No. 3,429,147 to Perrier, et al.	50
F. U.S. Patent No. 1,093,032 to Cadenas	54
VIII. OVERVIEW OF GROUNDS	55
IX. GROUND 1: Clark Anticipates Claims 1, 2, 5-9, 11-13, 15-19, and 21	56
A. Clark Anticipates Claim 1	56
1. Preamble.....	56
2. Limitation 1.a	57
i. “simultaneously knitting a textile element with a surrounding textile structure”	57
ii. “the knitted textile element having at least one knitted texture that differs from a knitted texture in the surrounding knitted textile structure”	59

TABLE OF CONTENTS

(*cont'd*)

	Page No.
3. Limitation 1.b: “removing the knitted textile element from the surrounding knitted textile structure”	63
4. Limitation 1.c.: “incorporating the knitted textile element into the article of footwear”	63
B. Clark Anticipates Claim 13	64
1. Preamble.....	65
2. Limitation 13.a: “knitting a first textile element and a second textile element simultaneously with knitting a surrounding textile structure, the first knitted textile element located within a first portion of the knitted textile structure, the second knitted textile element located within a second portion of the knitted textile structure”	65
3. Limitation 13.b: “varying at least one of the types of stitches or the types of yarns in the knitted textile structure to impart a texture to the first and second knitted textile elements different from a texture of the knitted textile structure extending between the first and second portions”	66
4. Limitation 13.c: “removing the first and second knitted textile elements from the knitted textile structure”	68
5. Limitation 13.d: “incorporating at least one of the first and second knitted textile elements into the article of footwear”	69
C. Clark Anticipates Claim 2	70
D. Clark Anticipates Claims 5 and 15.....	70
E. Clark Anticipates Claims 6, 7, and 16-18	71
F. Clark Anticipates Claims 8, 11, and 21.....	74
G. Clark Anticipates Claims 9 and 19.....	76

TABLE OF CONTENTS
(cont'd)

	Page No.
H. Clark Anticipates Claim 12	77
X. GROUND 2: Claim 3, 4, and 14 are Obvious in Light of Clark and Müller	79
XI. GROUND 3: Clark in View of a POSA's General Knowledge Renders Obvious Claims 9, 10, 19, and 20.	82
XII. GROUND 4: Claims 5, 12, and 15 are Obvious in Light of Clark and Davis	86
A. Claims 5 and 15	86
B. Claim 12	88
XIII. GROUND 5: Mills Anticipates Claims 1-8, 11, 13-18, and 21.....	90
A. Mills Discloses Claim 1	90
1. Preamble.....	91
2. Limitation 1.a:.....	92
i. “simultaneously knitting a textile element with a surrounding textile structure”	92
ii. “the knitted textile element having at least one knitted texture that differs from a knitted texture in the surrounding knitted textile structure”	93
3. Limitation 1.b: “removing the knitted textile element from the surrounding knitted textile structure”	96
4. Limitation 1.c: “incorporating the knitted textile element into the article of footwear”	97
B. Mills Anticipates Claim 13	98
1. Preamble.....	98

TABLE OF CONTENTS

(cont'd)

	Page No.
2. Limitation 13.a: “knitting a first textile element and a second textile element simultaneously with knitting a surrounding textile structure, the first knitted textile element located within a first portion of the knitted textile structure, the second knitted textile element located within a second portion of the knitted textile structure”	99
3. Limitation 13.b: “varying at least one of the types of stitches or the types of yarns in the knitted textile structure to impart a texture to the first and second knitted textile elements different from a texture of the knitted textile structure extending between the first and second portions”	100
4. Limitation 13.c: “removing the first and second knitted textile elements from the knitted textile structure”	101
5. Limitation 13.d: “incorporating at least one of the first and second knitted textile elements into the article of footwear”	102
C. Mills Anticipates Claim 2	102
D. Mills Anticipates Claims 3, 4, and 14	103
E. Mills Anticipates Claims 5 and 15	105
F. Mills Anticipates Claim 6, 7, and 16-18	107
G. Mills Anticipates Claim 8	108
H. Mills Anticipates Claims 11 and 21	109
XIV. GROUND 6: Mills in View of the Knowledge of a POSA Renders Obvious Claims 9, 10, 19, and 20	110
XV. GROUND 7: Claim 12 is Obvious in Light of Mills in Combination with Cadenas.....	113

TABLE OF CONTENTS
(cont'd)

	Page No.
XVI. NO SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS	115
XVII. CONCLUSION	115
MATERIALS CONSIDERED.....	118

Exhibit No.	Description
1001	U.S. Patent No. 8,266,749 to Dua, et al.
1002	Excerpts of Prosecution History for U.S. Patent No. 8,266,749
1003	Declaration of Dr. David Brookstein
1004	U.S. Patent No. 2,440,393 to Clark, et al.
1005	G.B. Patent No. 228,917 to Müller
1006	U.S. Patent No. 6,299,962 to Davis, et al.
1007	G.B. Patent No. 500,230 to Mills
1008	U.S. Patent No. 3,429,147 to Perrier, et al.
1009	U.S. Patent No. 1,093,032 to Cadenas
1010	David J. Spencer, <i>Knitting Technology: a Comprehensive Handbook and Practical Guide</i> (3d ed. 2001)
1011	Hazel Pope, <i>A Machine Knitter's Handbook</i> (1988)
1012	Excerpts of Harry Wignall, <i>Knitting</i> (1964)
1013	Excerpts of George E. Linton, <i>The Modern Textile Dictionary</i> (1st ed. 1954)
1014	H. Stoll GmbH & Co, <i>Stoll Training: Manual Flat Knitting Machine</i> (2013)
1015	adidas AG v. Nike, Inc., IPR2016-00922 Final Written Decision (Paper No. 31)
1016	Curriculum Vitae of Dr. David S. Brookstein
1017	Excerpts of Hollen et al., <i>Textiles</i> (6th ed. 1988)
1018	U.S. Courts, Statistics and Reports, Table C-5, U.S. District Courts—Civil Federal Judicial Caseload Statistics, March 31, 2023

I, David Brookstein, declare as follows:

1. I have been retained on behalf of New Balance Athletics, Inc. (“Petitioner” or “New Balance”) in connection with its petition for *inter partes* review (“IPR”) of U.S. Patent No. 8,266,749 “Article of footwear having a textile upper” (“the ’749 patent”). The patent discloses various warp knitting or weft knitting processes that may be utilized to form the textile upper. EX1001. I understand that Petitioner is challenging claims 1-21 of the ’749 patent.

2. Petitioner has asked me to consider the patentability of the claims of the ’749 patent in light of the prior art and provide a tutorial on the technology that is the subject matter of the ’749 patent. All of the materials that I considered and relied upon are discussed explicitly in this declaration. These materials are listed on p. 118 herein.

I. BACKGROUND AND QUALIFICATIONS

3. I was awarded: a Bachelor of Textile Engineering degree from the Georgia Institute of Technology (“Georgia Tech”) in 1971¹ after transferring there after studying textile engineering for two years at Philadelphia College of Textiles

¹In 1971, Georgia Tech offered the only undergraduate textile engineering degree in the United States that was accredited by the Accreditation Board for Engineering and Technology (ABET).

and Science from 1967-1969; a Master of Science degree in Textile Technology from the Massachusetts Institute of Technology (“MIT”); and a Doctor of Science degree in the field of mechanical engineering from MIT in 1976. My doctoral thesis was on the subject of textured synthetic yarns, which, at the time, were widely used in knitted structures.

4. I was a professor of Textile Engineering at Georgia Tech from 1975 to 1980. I was Associate Director of Albany International Research Co. (formerly Fabric Research Laboratories, Inc.) from 1980-1994. I was Dean of the School of Engineering and Textiles and Executive Director of Research at Philadelphia University (formerly Philadelphia College of Textiles and Science) from 1994 to 2010. In 2010, I was appointed Executive Dean for University Research at Philadelphia University and served in that position through June 2012. In July 2012, I resigned from Philadelphia University to become Dean of the Science, Technology, Engineering, and Mathematics Division of Montgomery County Community College in Pennsylvania. In August 2014, I was appointed Professor of Mechanical Engineering and Director of Undergraduate Affairs at the Temple University College of Engineering, and in July 2017, I was promoted to Senior Associate Dean of Undergraduate Studies at the Temple University College of Engineering. I retain my rank of Professor of Mechanical Engineering and I am responsible for the capstone senior design course required of all engineering undergraduate students.

5. In 1995, I was elected by my peers as a Fellow of the American Society of Mechanical Engineers, which is an honorific awarded to only about 1% of its members. In 1992, I was elected by my peers as a Fellow of The Textile Institute (United Kingdom). In 1998, I was awarded the American Society for Testing and Materials: Harold Dewitt Smith Award for textile fiber utilization. In 1993, I was awarded the Techtextil Innovation Prize (Germany). I have conducted research on knitting when I was employed at the Albany International Research Co. (formerly Fabric Research laboratories, Inc.). I taught courses in knitting technology during my period as an assistant professor of textile engineering at Georgia Tech and as Dean of Engineering and Textiles at Philadelphia University (formerly Philadelphia College of Textiles and Science).

6. I am the named inventor on 13 U.S. patents, all of which relate to the to the field of structures made using the principles of textile engineering and science.

7. In 1995, I attended the 12th International Textile Machinery Exhibition (ITMA 95) held in Milan, Italy, where I saw the Shima Seiki WHOLEGARMENT® flat weft knitting machine and learned about its capabilities.

8. A copy of my *curriculum vitae*, provided as Exhibit 1016, contains further details concerning my education, experience, publications, patents, and other qualifications to render an expert opinion in this matter.

9. I am being compensated for my work in this matter at my standard hourly rate for consulting services. My compensation in no way depends on the outcome of this proceeding. I have no personal or financial stake or interest in the outcome of this proceeding.

10. I understand that Petitioner will cite and rely on significant portions of my testimony and analysis set forth in this declaration in support of its Petition challenging the patentability of the '749 patent. I have not been provided or reviewed the Petition or any drafts of the Petition, and, thus, the Petition or drafts of the Petition have not influenced my testimony or analysis set forth in this declaration.

11. Between now and such time that I may be asked to testify, I expect to continue my review, evaluation, and analysis of evidence presented before and/or at the hearing. I expect to review the declarations and other evidence submitted by Patent Owner Nike's experts. I reserve the right to amend or supplement this declaration, as appropriate, after considering any opinions set forth by Nike's experts. In the event that additional relevant information becomes available to me, I also reserve the right to review and consider that information in further developing or refining my opinions.

II. LEGAL PRINCIPLES

12. I am not an attorney or patent agent. Therefore, in formulating my opinions and conclusions in this proceeding, I have been provided with an

understanding of the relevant aspects of U.S. patent law that govern the issues of patent validity by counsel for the Petitioner.

A. Prior Art

13. I understand that, in this IPR proceeding, the prior art to the '749 patent includes patents and printed publications in the relevant field(s) that predate the '749 patent's priority date, which I understand to be March 4, 2004.

B. Person of Ordinary Skill in the Art

14. I understand that the validity of claims of a patent is assessed through the eyes of a person of ordinary skill in the art ("POSA"). The POSA is a hypothetical person presumed to know all the relevant prior art and have an ordinary level of creativity.

C. Claim Construction

15. I understand that claim terms are generally given their ordinary and customary meaning, which is the meaning that the term would have to a POSA at the time of the invention, i.e., as of the effective filing date of the patent application. I further understand that the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which a claim term appears, but in the context of the entire patent, including the written specification and the accompanying drawings.

16. I am informed by counsel that the patent specification has been described as the single best guide to the meaning of a claim term and is thus highly relevant to the interpretation of claim terms. I understand that for terms that do not have a customary meaning within the art, the specification and drawings usually supply the best context of understanding the meaning of those terms.

17. I am further informed by counsel that other claims of the patent in question, both asserted and unasserted, can be valuable sources of information as to the meaning of a claim term. Because the claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims. Differences among claims can also be a useful guide in understanding the meaning of particular claim terms.

18. I understand that the prosecution history can further inform the meaning of the claim language by demonstrating how the inventors understood the invention and whether the inventors limited the invention in the course of prosecution, making the claim scope narrower than it otherwise would be. Extrinsic evidence may also be consulted in construing the claim terms, such as my expert testimony.

19. I have been informed by counsel that, in IPR proceedings, a claim of a patent shall be construed using the same claim construction standard that would be used to construe the claim in a civil action filed in a U.S. district court, which means the claims claim language are construed in accordance with the ordinary and

customary meaning of such claim as understood by one of ordinary skill in the art in light of the specification and prosecution history pertaining to the patent.

20. I have been instructed by counsel to apply this claim construction standard for purposes of interpreting the claims in this proceeding, to the extent they require an explicit construction.

21. I understand that some claims are independent, and that these claims are complete by themselves. Other claims refer to these independent claims and are “dependent” from those independent claims. The dependent claims include all of the limitations of the claims on which they depend.

D. Anticipation

22. I understand that a patent claim is anticipated if a single prior art document describes every element of the claim such that a POSA could practice the claimed method without undue experimentation.

23. I understand that anticipation may be by express disclosure in the prior art. I also understand that if the prior art reference does not expressly set forth a particular claim element, the prior art may still anticipate a patent claim if that element is “inherent” in its disclosure—that is, if it is necessarily found in the reference. A property is inherent even if a POSA would not have appreciated that property as of the date of that prior art.

E. Obviousness

24. I understand that obviousness is a determination of law based on various underlying determinations of fact. In particular, these underlying factual determinations include: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art at the time the claimed invention was made; (3) the differences between the claimed invention and the prior art; and (4) the extent of any proffered objective indicia of non-obviousness. I understand that the objective indicia, which may be considered in such an analysis, include commercial success of the patented invention, industry recognition, whether the invention fills a long-felt but unsolved need in the field, the failure of others to arrive at the invention, industry acquiescence and recognition, initial skepticism of others in the field, whether the inventors proceeded in a direction contrary to the accepted wisdom of those of ordinary skill in the art, and the taking of licenses under the patent by others, among other factors.

25. To ascertain the scope and content of the prior art, it is necessary to first examine the field of the inventor's endeavor and the particular problem for which the invention was made. The relevant prior art includes prior art in the field of the invention, and also prior art from other fields that a person of ordinary skill in the art would look to when attempting to solve the problem.

26. I understand that a determination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention. Instead, it is my understanding that in order to render a patent claim invalid as being obvious from a combination of references, there must be some evidence within the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination in a way that would produce the patented invention.

27. I further understand that in an obviousness analysis, neither the motivation nor the purpose of the patentee dictates. Rather, any problem known in the field can provide a reason for combining the prior art in the manner claimed.

III. LEVEL OF ORDINARY SKILL IN THE ART

28. I understand that for purposes of assessing the obviousness of the '749 Patent, the level of skill possessed by the hypothetical person of ordinary skill in the art is informed by several factors. These factors include the type of problems encountered in the relevant art, the prior art solutions to those problems, the rapidity with which innovations are made in the relevant art, the sophistication of the relevant technology, and the educational level of active workers in the field.

29. The relevant field of the '749 patent relates to knitted textile elements for footwear articles, such as an article of footwear comprising an upper that includes a knitted textile element. EX1001, 1:20-23.

30. In my opinion, a POSA at the relevant time period, which I understand to be around the time of the earliest priority application, March 2004, would have had a bachelor's degree in textile engineering, mechanical engineering, or similar technical degree and at least 3 years of experience working with knitted textiles for use in fabric-based articles, including apparel such as footwear. For individuals with different educational backgrounds, a person could still be of ordinary skill in the art provided that person's additional experience compensates for any differences in that person's education stated above. This education and background provide the necessary training and understanding of the manufacture of the knitted elements described and claimed in '749 patent. All of my opinions set forth herein are provided from the perspective of a person having the above education and training.

31. As of March 2004, I had an undergraduate degree in Textile Engineering from Georgia Tech, both an M.S. in Textile Technology and doctorate in the field of Mechanical Engineering from the Massachusetts Institute of Technology (MIT), and had 36 years of experience in academia and industry with knitted textiles. Thus, in March 2004, I was at least a POSA.

IV. TECHNOLOGY BACKGROUND

32. This brief technical overview gives background on some concepts that would have been familiar to a POSA that are relevant to the discussion herein. However, it is not a full overview of knitting or the concepts known to a POSA by

2004. David J. Spencer, *Knitting Technology: a Comprehensive Handbook and Practical Guide* (3d ed. 2001) (“Spencer”), EX1010; Hazel Pope, *A Machine Knitter’s Handbook* (1988) (“Pope”), EX1011; Excerpts of Harry Wignall, *Knitting* (1964) (“Wignall”), EX1012; Excerpts of George E. Linton, *The Modern Textile Dictionary* (1st ed. 1954) (“Linton”), EX1013; H. Stoll GmbH & Co, *Stoll Training: Manual Flat Knitting Machine* (2013) (“Stoll”), EX1014; and Excerpts of Hollen et al., *Textiles* (6th ed. 1988), EX1017 (“Hollen”), provide numerous additional basic knitting concepts that would have been familiar to a POSA by 2004.

A. History of Knitting

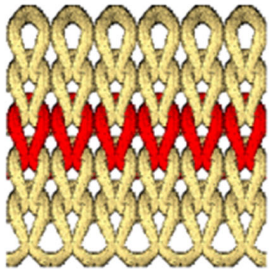
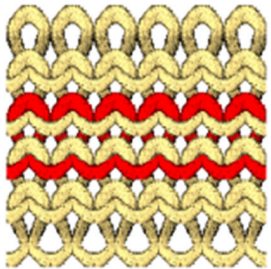
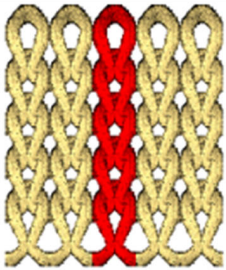
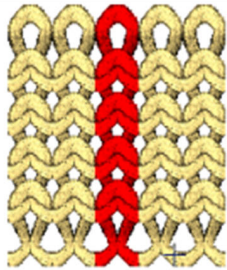
33. Knitting is a relatively old technology, and examples have been discovered that date back to at least the 1300s. EX1010, 30-31. Knitting is the “technique of constructing textile structures by forming a continuous length of yarn into columns of vertically intermeshed loops.” *Id.*, 30. Over the centuries, knitting technology developed and became more sophisticated. There are two types of machine knitting—weft knitting and warp knitting. As explained further below, these knitting methods differ in the way the yarns are interlooped to create a textile structure.

B. Knitting Basics

34. The knitting process can achieve different textures using various techniques and stitch patterns. There are primary base stitches in both weft and warp

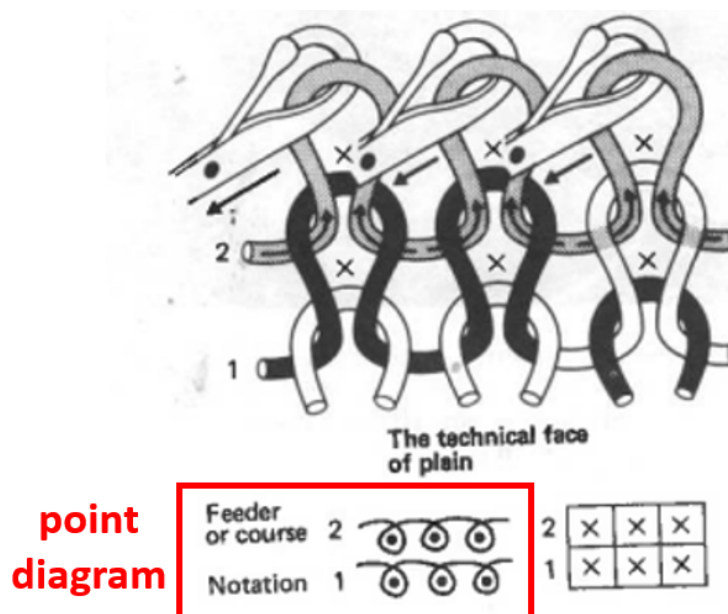
knitted structures to impart texture. Additionally, yarns can have different textures according to their fiber content, construction, and how they are produced (e.g., continuous filament or spun from staple fibers). For weft knitting, each of the basic stitches: plain or jersey stitch, tuck stitch, rib stitch, and purl stitch, would impart different textures depending on how they are used. *Id.*, 83-104, 117-122. Different stitch patterns provide for different structures accounting for the difference in texture.

35. A plain or jersey stitch has the structure shown below.

Stitch row		
	Technologically right fabric side	Technologically reverse fabric side
		
Wale		
		

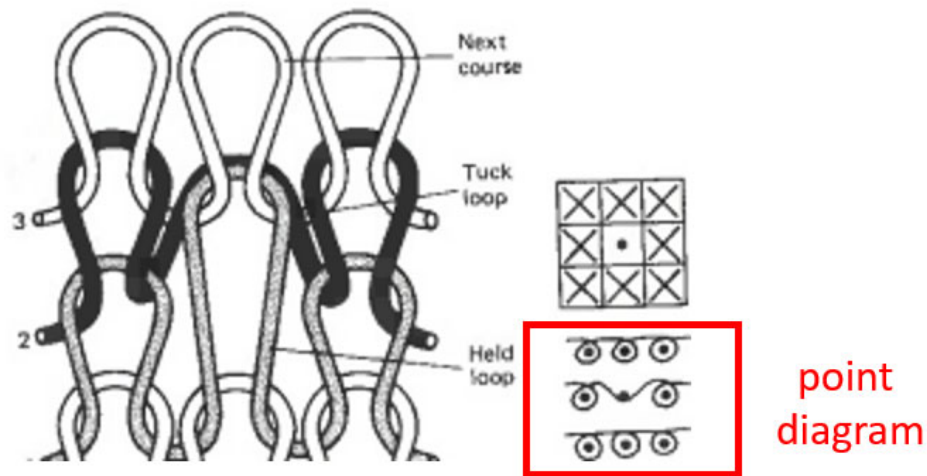
EX1014, 22.

36. The plain or jersey stitch can be represented by the notation shown below, which is called “point” diagram. The solid dots represent the knitting needle, and the yarn that is being knitted is represented by the solid line.



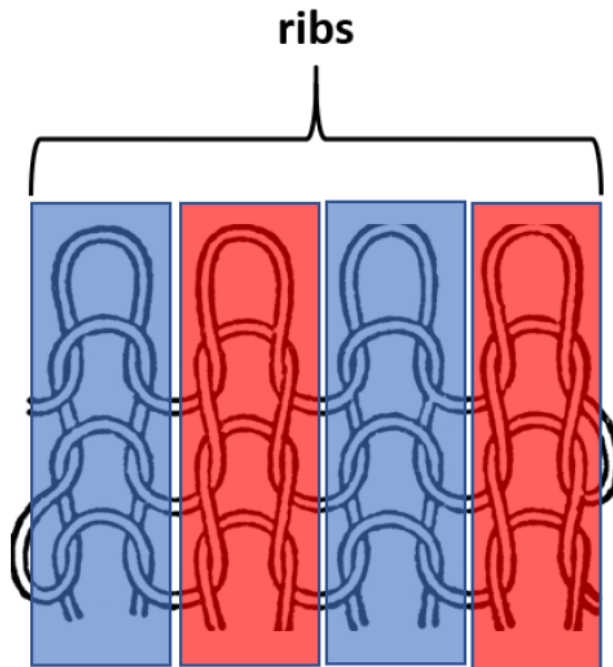
EX1010, 84 (annotated).

37. A tuck stitch is composed of a “held” loop. It is produced when a knitting needle holding its loop also receives the new loop which becomes a tuck loop because it is not intermeshed through the previous loop but is tucked behind it on the reverse side of the stitch. This is shown below with the accompanying “point” diagram:



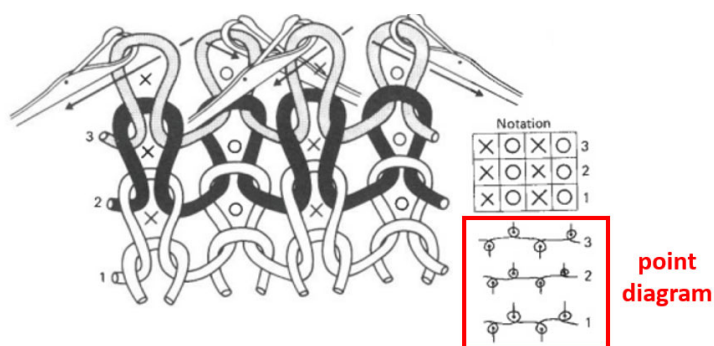
Id., 118.

38. A rib stitch has the structure shown below wherein adjacent ribs are shaded to identify each rib.



39. In contrast to knitting plain or jersey stitches and tuck stitches, a rib stitch can only be weft knitted on a double bed knitting machine (either circular or

flat). Below is a diagram of the simplest rib knitted fabric and is known as a 1x1 rib. A POSA would have known that the 1x1 rib stitch depicted above can be represented by the notation shown below, which is called “point” diagram. The solid dots represent the knitting needle, and the yarn that is being knitted is represented by the solid line.



Id., 91.

40. A purl stitch is the only knit structure having certain wales containing both face and reverse meshed loops. Purl knitting machines are capable of producing rib or plain knitting sequences by retaining certain needle arrangements during the production of a garment or other knitted article. *Id.*, 83-84.

41. Below is a “point” diagram of a purl knit stitch.

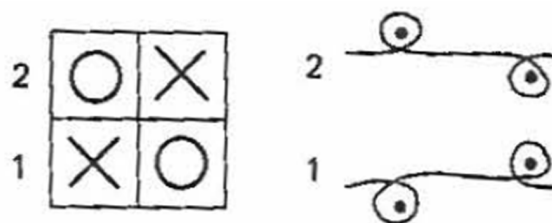


Fig. 7.20 Purl notation.

Id., 102.

42. In addition to knitted loops for both warp knitted and weft knitted, fabrics may be made with additional straight yarns that are laid-in between the knitted loops in the knitted structures. For warp knits, inlaid (or laid-in) fabric consists of a ground structure of knitted or overlapped yarns that hold into position other non-knitted (straight) yarns which are incorporated (laid-in) into the structure during the same knitting cycle. An inlaid yarn is never formed into a knitted loop but is held in place between the interlooped yarns. As such, a laid-in yarn can be a relatively thicker yarn or a yarn that is different than the knitted yarns. *Id.*, 77-78. As such, the portion of the textile structure that has laid-in yarns would have a different texture than the textile structure without laid-in yarns.

C. Knitting Machines

43. At least by the early 2000s, both types of knitting machines were mechanized for the commercial manufacture of knitted textiles. Both types of machines were electronically controlled and programmable to allow the knit fabric

designer to select the yarn and the stitch to be used in the particular sections of the material. *See id.*, 157-67. For example, knitting machines can be used to create a wide variety of textured fabrics including gossamer-sheer nets and veilings to heavy carpets, and industrial items like fish nets and swimming pool covers. EX1017, 9.

44. Some mechanically controlled weft knitting machines were invented by the mid-1700s, with warp knitting machines being developed slightly later. EX1010, 35-36. In the mid-1800s, Matthew Townsend's versatile latch needle and his practical patents applying the use of the "self-acting" needle paved the way for electronically controlled individual needles selection on both V-bed and circular machines today. *Id.*, 12, 22.

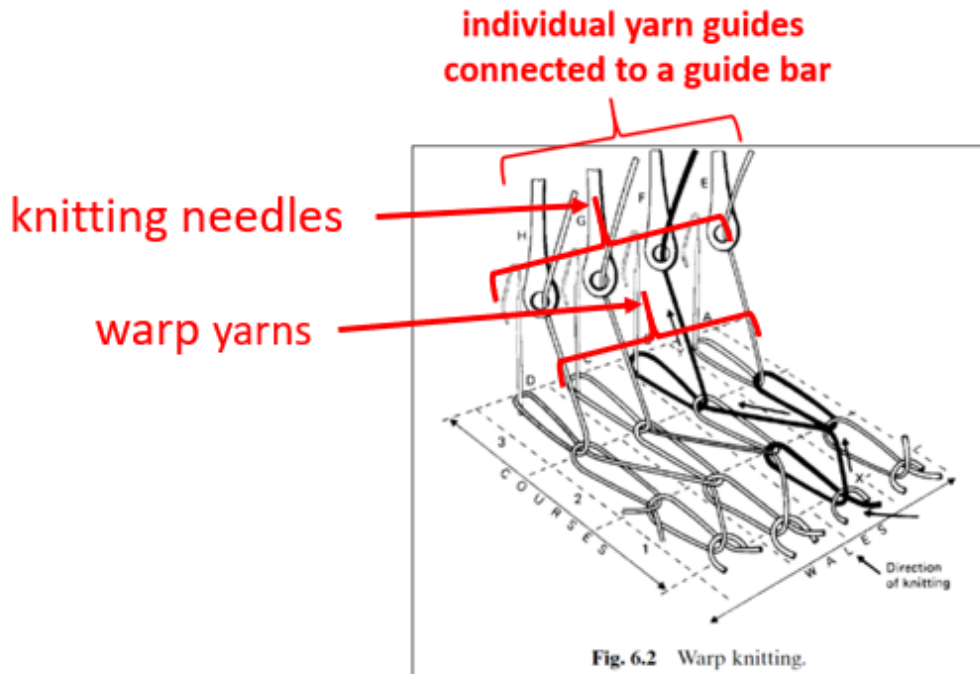
1. Warp Knitting Machines

45. Warp knitting machines can be separated into Simplex, Milanese, tricot, or raschel knitting machines. EX1017, 4, 6. Tricot and raschel knitting machines are the most common. *Id.* Raschel knitting machines are used for their broad-ranging applications, where a fine yarn restrains and stabilizes a heavier, textured yarn. *Id.*, 9.

46. In a warp knitting method, the threads loop vertically along the machine in the fabric. *Id.*, 3. Warp knitting was never a hand-manipulated craft and warp knitting machines were first developed in 1769 with the first warp knitting machine patent granted in 1775. EX1010, 35-36. Warp knitting is a loop forming process of

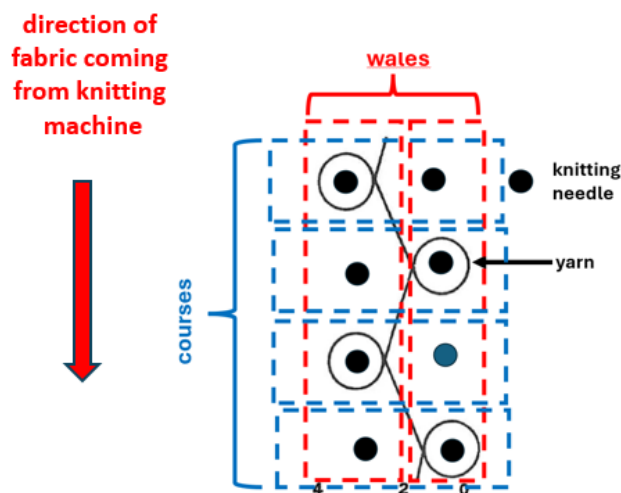
yarns in which the yarn is fed into the knitting zone parallel to the length of the resulting fabric. Fabric is made by forming loops from yarns coming in parallel in the direction of fabric formation. Every knitting needle is fed by a separate yarn for loop formation. To connect the loops in a fabric, the yarns are shifted (“shogging”) between the knitting needles. In this manner, the needle draws the new loop through the loop of another yarn from the previous knitting cycle. For the purpose of shogging, each yarn passes through a yarn guide fitted on a guide bar. Relatively large numbers of yarns (depending on the desired width of the fabric) in parallel are supplied from a warp beam. In this manner, warp knitting produces a fabric in which multiple yarns generally run lengthwise but in a zig-zag pattern that forms loops in two or more wales. Warp knitting machines are flat, however, the warp knitting machine generally has at least two knitting needle beds. The resulting warp knitted fabric can be tubular when knitted on at least a two-bed warp knitting machine. This occurs when a warp yarn at one side of the fabric is transferred by yarns in guides of guide bar from the front needle bed to the back needle bed.

47. An example of a single-bed warp knitting is illustrated below:



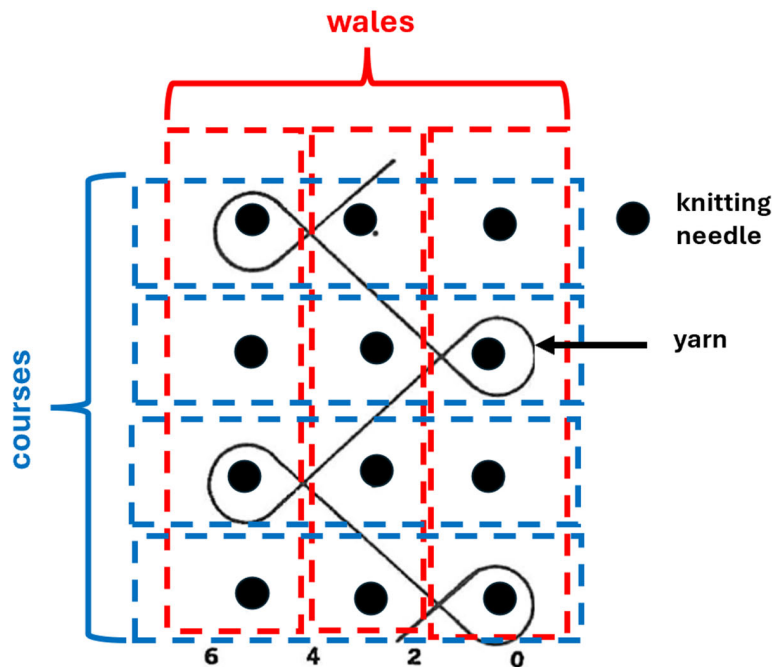
Id., 72 (annotated).

48. When a single warp yarn is transferred for one wale to an adjacent wale it is termed a single-bed raschel warp knit fabric. This is illustrated below.



49. When a single warp yarn is transferred from one wale to beyond an adjacent wale it can also be termed a raschel warp knit fabric. However, the

requirement to skip a column of needles requires that fabric is to be knitted on a jacquard machine which can individually control which needles are active during a knitting cycle. This is illustrated below.



50. A POSA would have understood that the amount of yarn for a given area for a raschel warp knit shown in the drawing in ¶49 is less than the yarn in the raschel warp knit shown in the drawn drawing in ¶48. Hence the textures of the knitted fabrics would be different even if the yarn denier² of the yarns were identical.

² Yarn denier refers to the linear density of the yarn expressed in grams/9000 meters.

51. Two needle bar warp knitting machines were known by knitting technologists at least by 1964. These machines are the equivalent of rib frames in warp knitting and the knitting needles are in two adjacent needle beds with the knitting needles back-to-back and opposite each other. These knitting machines can produce a wide range of knitted structures such as tricot, raschel, Simplex, and Milanese. EX1017, 3-12. A POSA would have known that these knitted structures have different textures.

52. Laying-in is achieved in warp knitting machines by causing a guide mounted on a guide bar, which introduces a laid-in yarn, to only underlap so that the yarn remains straight. The laying in guide may be specially designed to take thicker or unconventional yarns. EX1010, 351-62. This is shown below:

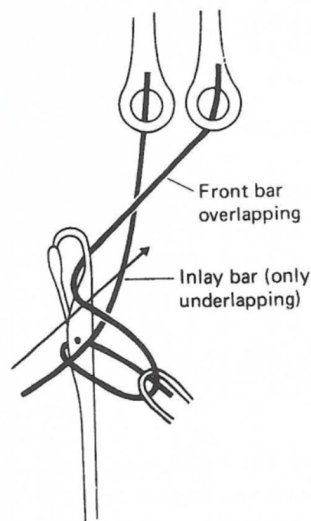
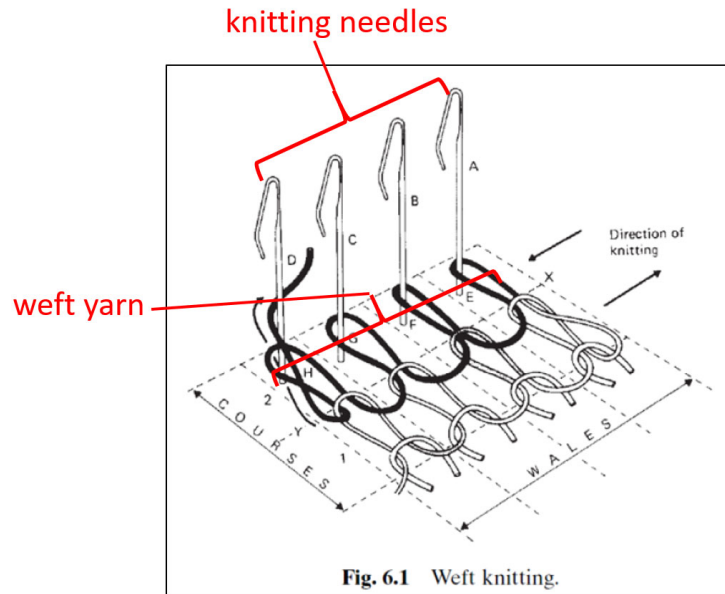


Fig. 27.1 The action of inlay in warp knitting.

Id., 351.

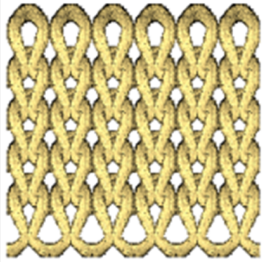
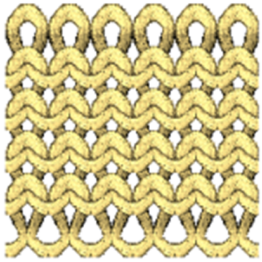
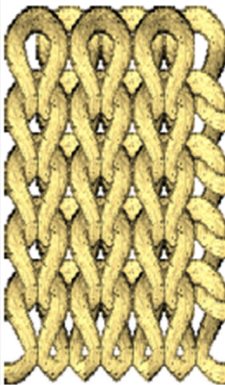
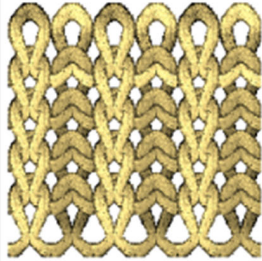
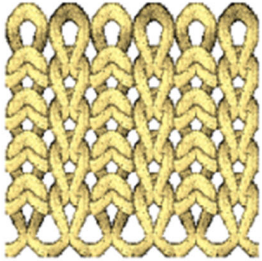
2. Weft Knitting Machines

53. Weft knitting produces a fabric with one continuous yarn running widthwise across the fabric and forming all of the loops in each course. *See id.*, 105-37. An example of weft knitting is illustrated below:



Id., 71(annotated).

54. Weft knitting machines can be separated into three main categories: flat bar, straight bar, and circular knitting machines. *See id.* Plain or jersey stitch weft knitted fabrics can be knitted on “single bed” knitting machines or “double bed” knitting machines. A “bed” is the mechanical element in which knitting needles are placed and where the mechanical motion of the knitting needles takes place. The drawings below depict visual representations of the different stitches resulting from a single bed or a double bed knitting machine.

Single jersey fabric (RL)		
	Technologically right fabric side	Technologically reverse fabric side
Single-bed fabric = single jersey fabric		
All needle knit fabric (DJ)		
Double-bed fabric = Double jersey fabric (without elongation)		
Double-bed fabric = Double jersey fabric (with elongation)		

EX1014, 21.

55. Plain or jersey weft knit fabrics can be made on a circular machine or a flat machine. The drawing below depicts a section of a circular knitting machine that produces a plain or jersey stitch:

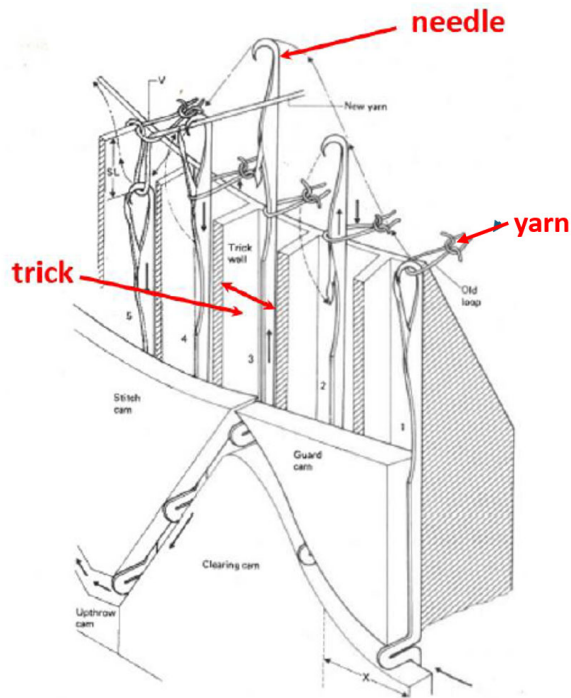


Fig. 3.4 Knitting action of the latch needle.

EX1010, 48 (annotated).

56. By 2004, a POSA would have known that rib stitch weft knit fabrics can be knitted on a circular or V-bed flat weft knitting machine. The figure below shows a typical V-bed flat weft knitting machine.

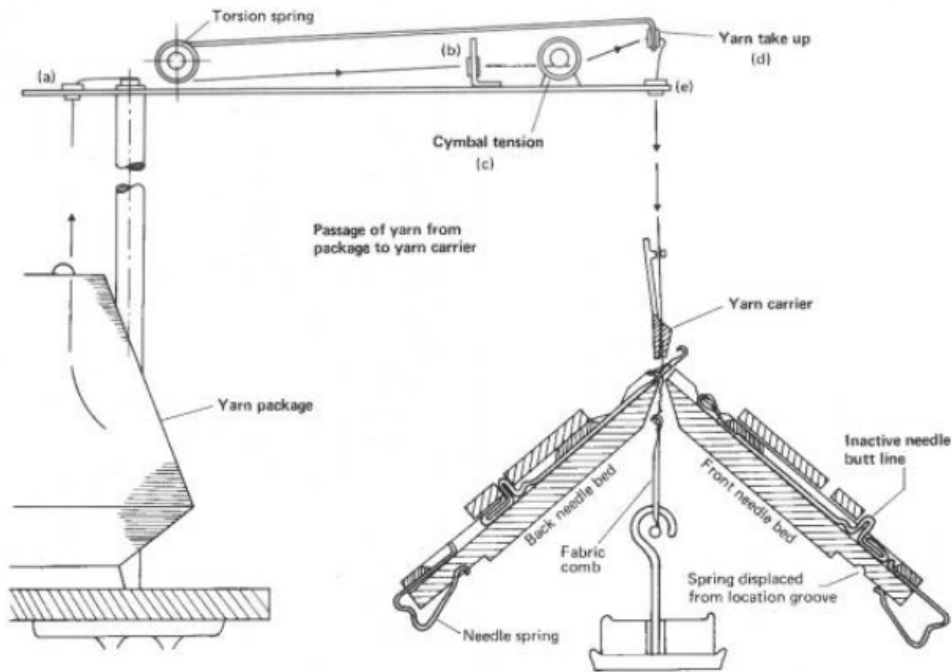
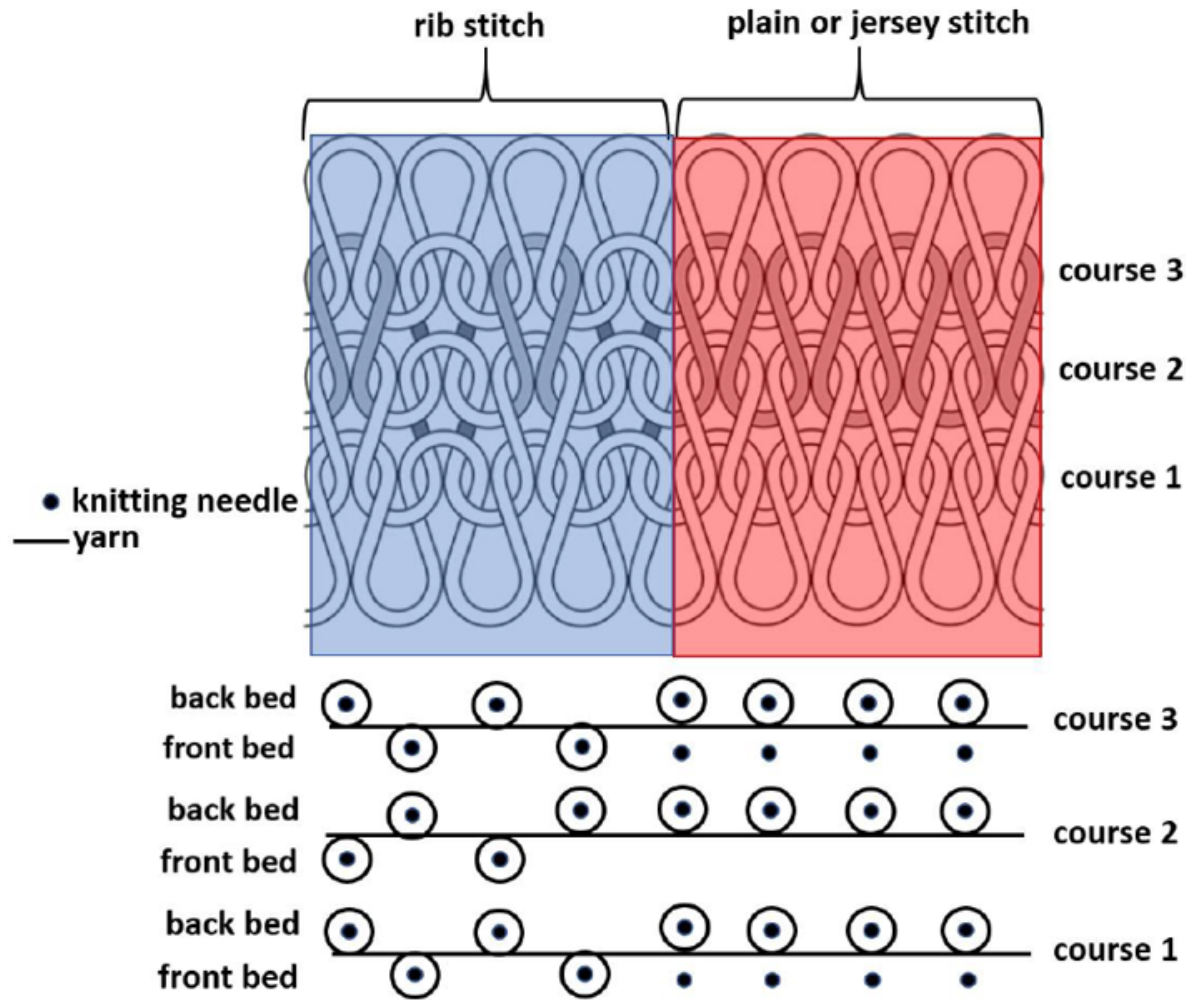


Fig. 18.1 Passage of yarn from package to yarn carrier.

Id., 233.

57. In 1995, at the 12th International Textile Machinery Exhibition (ITMA 95) held in Milano, Italy, Shima Seiki (one of the world's leading developers and manufacturers of weft knitting machines) presented its WHOLEGARMENT® knitting machine. While I was Dean of Engineering and Textiles at Philadelphia University, I viewed the presentation in person. The WHOLEGARMENT® knitting machine could produce any type of plain or rib knit constructions. When I saw this machine in 1995, I noted that it had multiple yarn carriers which enabled it to simultaneously produce a single weft knitted fabric with multiple types of yarns and with multiple types of knit constructions (e.g., plain and rib). For example, this machine could produce a weft knitted fabric that could be shown by the point

diagram below of three repeating courses. The colored shading below is used to show the difference in stitch configuration which a POSA would have understood to have different textures.



58. For weft knitting with two sets of knitting needles, inlaid yarns can be introduced into the structure merely by supplying the yarn across the backs of the knitting needles to trap the yarn in the fabric. This is shown below in the annotated figure.

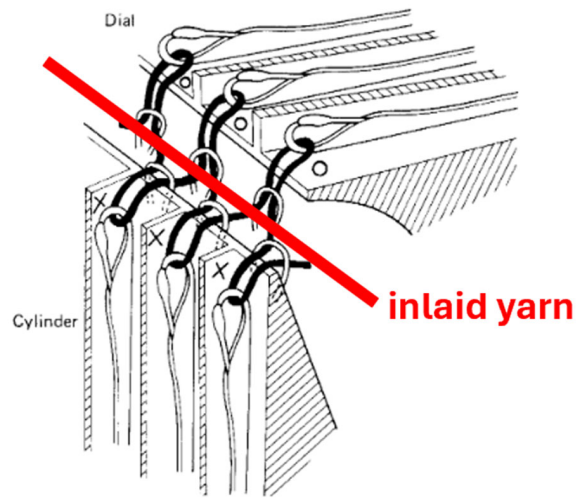


Fig. 7.7 Structure of 1 × 1 rib.

Id., 90 (annotated).

V. THE '749 PATENT

A. Overview of the '749 Patent

59. The '749 patent provides that it discloses an article of footwear with an upper which incorporates a knitted textile element. EX1001, 3:27-39. According to the '749 patent, the knitted textile element “may be formed as part of a larger textile element,” *id.*, 5:45-46, such as a textile element 60 with multiple knitted textile elements 40 and a surrounding structure as shown in Figure 9 below. *Id.*, 7:53-60.

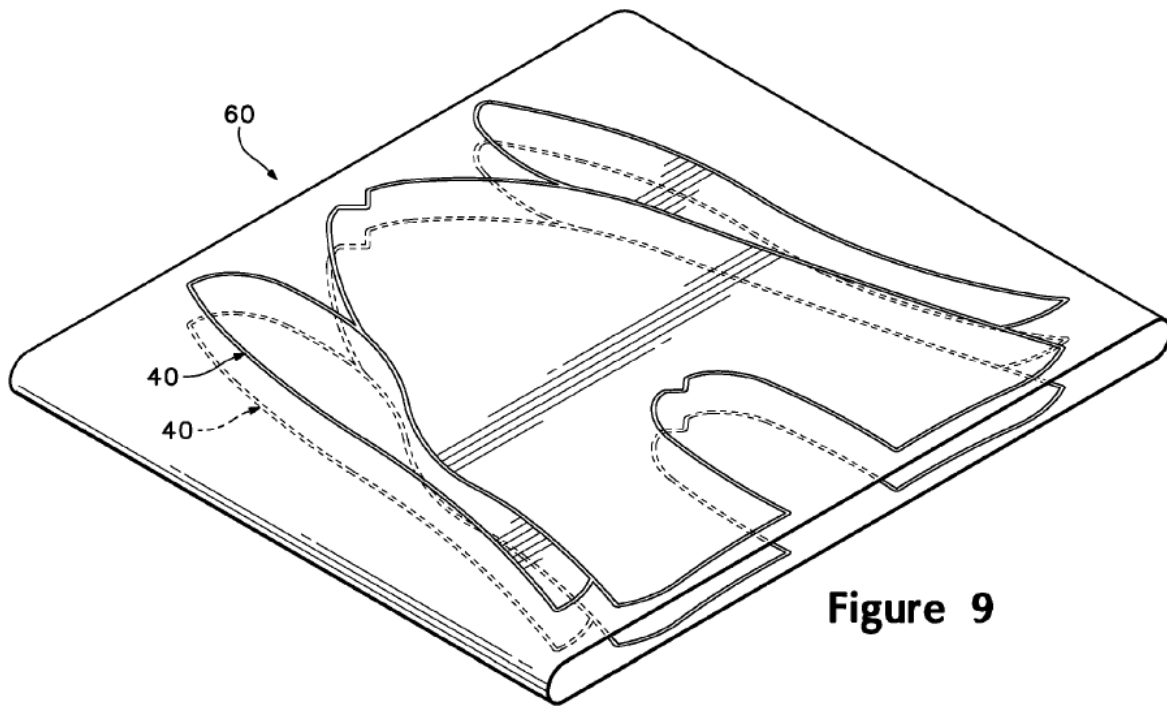


Figure 9

Id.; Fig. 9 (annotated). Figure 9 shows textile structure 60 “exhibit[ing] a generally cylindrical configuration” because textile structure 60 was knit on a “wide-tube circular knitting machine.” *Id.*, 7:38-40, 11:15-18. A POSA would have known that this type of knitting machine produces a weft knit fabric.

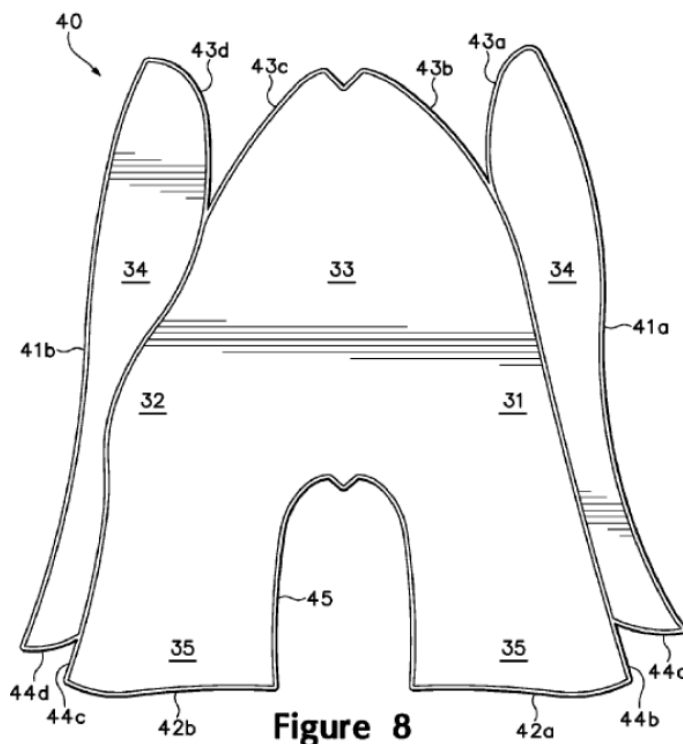
60. The '749 patent discloses the following about a circular knitting machine:

A wide-tube circular knitting machine, as produced by Santoni S.p.A., forms a generally cylindrical textile structure and is capable of forming various types of stitches within a single textile structure. In general, the wide-tube circular knitting machine may be programmed to alter the design on the textile structure through needle selection. That is, the type of stitch that is formed at each location on the textile structure may be selected by programming the wide-tube circular knitting machine such that specific needles either accept or do not accept yarn at each stitch location. In this manner, various

patterns, textures, or designs may be selectively and purposefully imparted to the textile structure.

Id., 7:26-37.

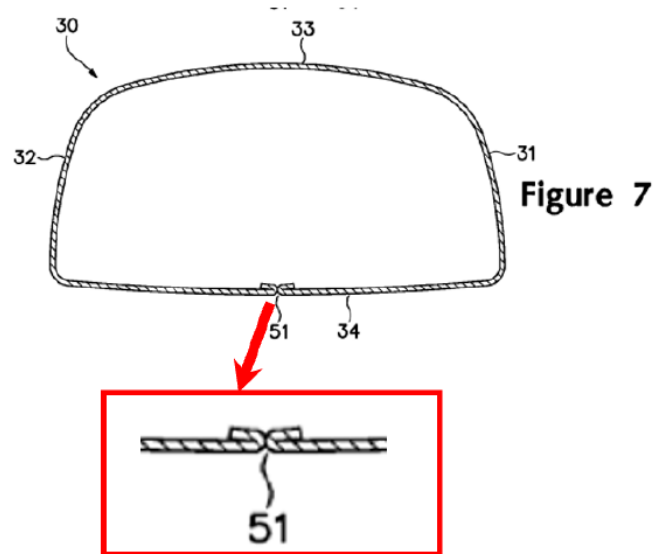
61. The '749 patent provides that “[e]ach textile element 40 is then removed from textile structure 60 with a die-cutting, laser-cutting, or other conventional cutting operation.” *Id.*, 8:4-6. Textile element 40 that has been removed from textile structure 60 is shown in Figure 8 of the '749 patent.



Id., Fig. 8.

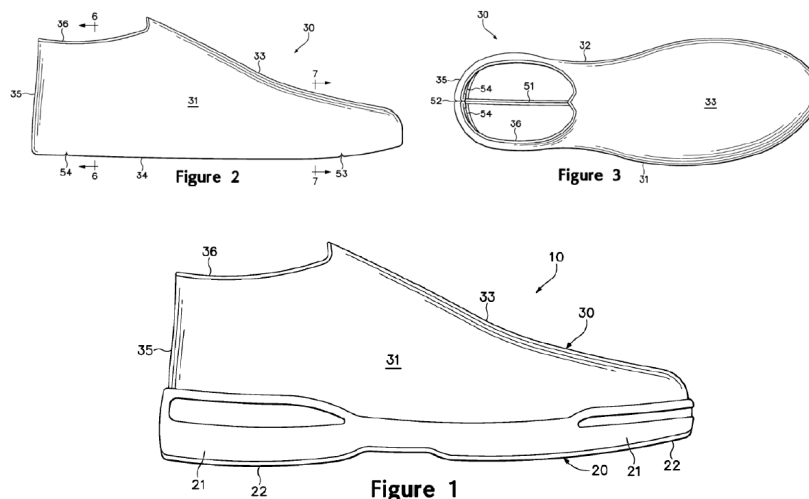
62. According to the '749 patent, “[i]n order to join edges 41a and 41b to form seam 51, textile element 40 is folded or otherwise overlapped such that edge 41a is placed adjacent to edge 41b.” *Id.*, 6:9-11. “Stitching, an adhesive, or heat

bonding, for example, is then utilized to secure edge 41a and edge 41b.” *Id.*, 6:11-13. This is shown in Figure 7 of the ’749 patent.



Id., Fig. 7 (annotated).

63. The ’749 patent discloses that “[o]nce textile element 40 is removed from textile structure 60, seams 51-54 may be formed [as shown in Figures 2 and 3 below] and textile element 40 may be incorporated into footwear 10 [as shown in Figure 1 below].” *Id.*, 8:6-8.

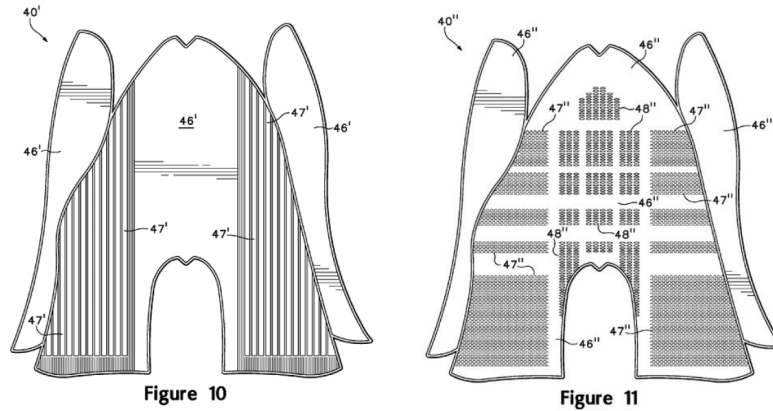


Id., Figs. 1-3.

64. The '749 patent discloses other implementations in which textile structure 60 is “formed with the jacquard double needle-bar raschel,” which results in “a flat configuration” rather than the cylindrical configuration shown in Figure 9. *Id.*, 11:15-18. A POSA would have known that a raschel knitting machine produces a warp knit fabric.

65. The '749 patent states that textile materials for footwear may be selected for the properties of wear-resistance, flexibility, and air-permeability, as well as moisture wicking which removes perspiration from the foot. *Id.*, 10:40-48.

66. The '749 patent provides that different textures may be included in different areas of the knitted textile element. *Id.*, 9:18-28. Such different textures exhibit “aesthetic differences” or “structural” differences like varying stretch, wear resistance, or air-permeability. *Id.*, 9:42-46. The '749 patent discloses that such different textures may be formed by varying “stitch configuration” and “yarn type.” *Id.*, 9:58-10:7, 3:33-37. Figures 10 and 11 illustrate uppers with multiple textures, with the textures being designated with the reference numbers 46'-47' and 46''-48''. *Id.*, 9:18-57.



Id., Figs. 10-11.

67. For example, textile element 40'' includes three areas that each have a different texture, where texture 46'' is generally smooth, texture 47'' is generally rough in comparison with first texture 46'', and texture 48'' corresponds to an instep region (i.e., the part of the upper which covers a top of the foot) and is formed to include a plurality of apertures that extend through textile element 40''. *Id.*, 9:31-49. The '749 patent also provides that one texture in the knitted textile element can vary from one texture in the surrounding area of a larger textile element from which the knitted textile element is removed. *Id.*, Claim 1.

68. The '749 patent acknowledges that knitting machines for constructing the textile elements disclosed were known. *Id.*, 7:9-25, 8:61-9:4. The '749 patent does not provide that any modifications were required to the conventional operation of such known knitting machines to implement the disclosed methods.

B. Claims of the '749 Patent

69. The '749 patent includes 21 claims. Claims 1 and 13 are independent. I have included independent claim 1 below with labels added for convenient referencing to the claim limitations.

Claim 1	
1.pre	A method of manufacturing an article of footwear, the method comprising:
1.a	simultaneously knitting a textile element with a surrounding textile structure, the knitted textile element having at least one knitted texture that differs from a knitted texture in the surrounding knitted textile structure;
1.b	removing the knitted textile element from the surrounding knitted textile structure;
1.c	incorporating the knitted textile element into an article of footwear.

70. I have included independent claim 13 of the '749 patent below with labels added for reference.

Claim 13	
13.pre	A method of manufacturing an article of footwear, the method comprising:
13.a	knitting a first textile element and a second textile element simultaneously with knitting a surrounding textile structure, the first knitted textile element located within a first portion of the knitted

	textile structure, the second knitted textile element located within a second portion of the knitted textile structure,
13.b	varying at least one of the types of stitches or the types of yarns in the knitted textile structure to impart a texture to the first and second knitted textile elements different from a texture of the knitted textile structure extending between the first and second portions;
13.c	removing the first and second knitted textile elements from the knitted textile structure;
13.d	incorporating at least one of the first and second knitted textile elements into the article of footwear.

C. Prosecution History of the '749 Patent

71. Counsel provided me and I have reviewed the prosecution history of the application that led to the '749 patent. During prosecution of the '749 patent, the Examiner issued two substantive office actions. EX1002, 20-27, 40-45. In both office actions, the Examiner rejected pending claims 1-8, 11-18, and 21 as being anticipated by U.S. Patent No. 5,345, 638 to Nishida, et al. *Id.* Patent Owner argued in reply to the first office action that Nishida fails to disclose “a knitted textile element simultaneously formed with a knitted textile structure during a knitting process” because it discloses knitting a background material and then knitting layouts onto the backing material. *Id.*, 35-36. The Examiner again rejected the claims in light of Nishida. Patent Owner filed another reply maintaining its argument that Nishida-US fails to disclose simultaneous knitting and also arguing

that Nishida-US fails to disclose the claimed differing textures. *Id.*, 16-17. After Patent Owner’s second reply, the Examiner allowed the claims.

D. adidas IPR

72. I understand from counsel that in 2016 adidas filed a petition for IPR of the ’749 patent (*adidas AG v. Nike, Inc.*, IPR2016-00922 (“adidas IPR”)).

73. The prior art and arguments in the adidas IPR are different than those asserted in my declaration herein. The adidas IPR discussed two grounds supporting invalidity claims of the ’749 patent:

- Ground 1: Obviousness of claims 1-19, 11-19, and 21 in View of Reed and Nishida.
- Ground 2: Obviousness of Claims 1-19, 11-19, and 21 in View of Castello, Fujiwara, and Nishida.

74. The invalidity positions laid out below do not rely on any of the references relied on in the adidas IPR.

E. lululemon IPR

75. I am the same Dr. David Brookstein that submitted a declaration in *lululemon usa inc. v. Nike, Inc.*, IPR2024-00460 (“lululemon IPR”) also challenging the ’749 patent.

76. The prior art and arguments in the lululemon IPR are different than those asserted here. In my declaration supporting the lululemon IPR, I discussed six grounds supporting invalidity of claims of the '749 patent:

- Ground 1: Nishida (WO 92/22223) anticipates claims 1-8 and 12-18
- Ground 2: Nishida in view of a POSA's general knowledge renders obvious claims 9-10 and 19-20.
- Ground 3: Zuckerman (U.S. Patent No. 2,047,724) anticipates claims 1-3, 5-8, 11, 13-17, and 21.
- Ground 4: Zuckerman in view of a POSA's general knowledge renders obvious claims 3, 9-10, 14, and 19-20.
- Ground 5: Zuckerman in view of Doughty (U.S. Patent No. 2,047,724) renders obvious claim 12.
- Ground 6: Nishida in view of Zuckerman renders obvious claims 11 and 21.

77. The invalidity positions laid out below do not rely on any of the references relied on in my lululemon declaration.

VI. CLAIM CONSTRUCTION

78. I understand that in the adidas IPR, the Board issued a Final Written Decision construing certain claim terms.

A. “unitary construction” (Claims 11 and 21)

79. The phrase “unitary construction” appears in claims 11 and 21 of the ’749 patent. In the adidas IPR, the Board construed this phrase to mean “a configuration wherein portions of a textile element are not joined together by seams or other connections.” EX1015, 37-38. I have applied this construction throughout my opinions.

B. “a first area and a second area with a unitary construction” (Claims 11 and 21)

80. The phrase “a first area and a second area with a unitary construction” appears in claims 11 and 21 of the ’749 patent. I understand that in the adidas IPR, the Board construed this phrase to mean “a textile element having a unitary construction *and* having a first and second area.” *Id.*, 12-13. I have applied this construction throughout my opinions.

C. “wide-tube circular knitting machine” (Claims 9 and 19)

81. In the adidas IPR, the Board determined that a “‘wide-tube circular knitting machine’ is ‘a circular knitting machine forming body garment sized, tubular textile structures, including those having a diameter that ranges from 10 inches to 20 inches.’” *Id.*, 13. I have applied this construction throughout my opinions.

D. “impart” (Claims 11 and 21)

82. In the adidas IPR, the Board stated “to the extent any construction of this term is necessary, we find that the broadest reasonable interpretation of the term ‘impart’ is ‘to give, convey, or grant from.’” *Id.*, 13-16. I have applied this construction throughout my opinions.

E. “texture” (Claims 8, 11, and 21)

83. In the adidas IPR, the Board stated “to the extent any construction of this term is necessary, we find that the broadest reasonable interpretation of the term ‘texture’ in the context of claims 11 and 21 is ‘a non-smooth surface formed while simultaneously knitting a textile element with a surrounding textile structure.’” *Id.*, 17³. I have applied this construction in my opinions for claims 8, 11, and 21.

F. Other Terms

84. For all other terms of the ’749 patent’s claims, I have given the terms their plain and ordinary meaning as understood by a POSA having read the specification of the ’749 patent.

³The Board indicated in its header for its construction of “texture” that the term applies to “claims 8, 11, and 21.” EX1015, 13-16.

VII. OVERVIEW OF THE PRIOR ART

85. Below I provide an overview of selected prior art references. These references are exemplary of the knowledge of a POSA before March 4, 2004, the '749 patent's priority date.

A. U.S. Patent No. 2,440,393 to Clark, et al.

86. U.S. Patent No. 2,440,393 to Clark, et al. ("Clark"), EX1004, was issued April 27, 1948. It was not before the Patent Office during prosecution of the '749 patent.

87. Clark discloses a method of making last-fitting fabric uppers from a knitted material sheet. EX1004, 1:1-3. It discloses a "last⁴-fitting upper⁵" that "may be knitted of any yarn suitable for machine knitting...." *Id.*, 1:41-43. Clark's invention was intended to fill an "urgent demand in women's shoes for a great variety of ornamental and different color effects." *Id.*, 12-13. A POSA would understand that an "upper" is the part of a shoe, or other items of footwear, that is above the sole.

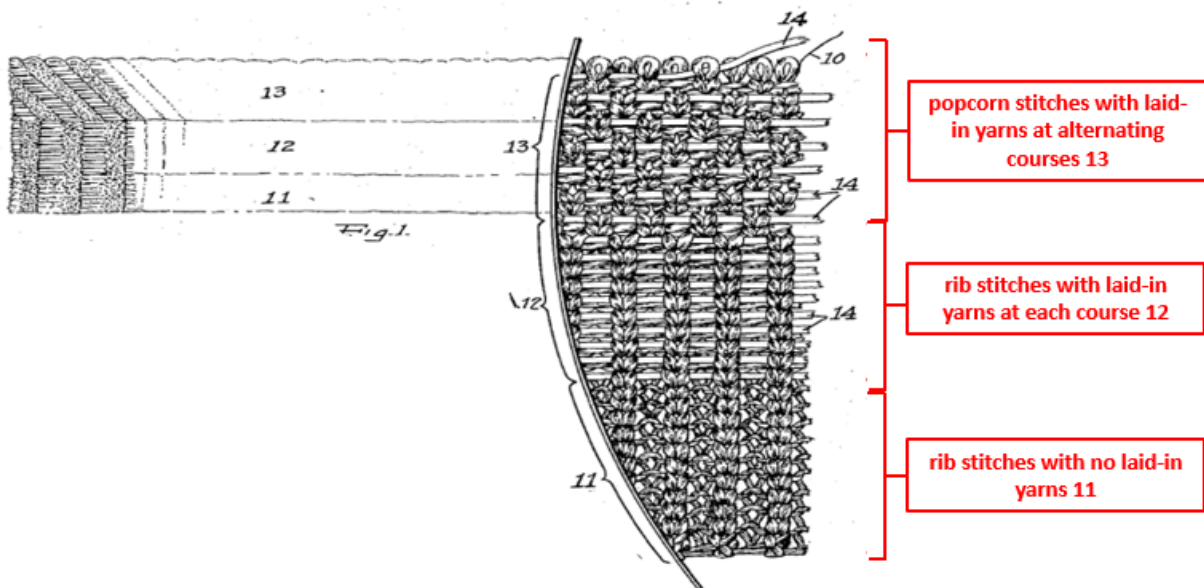
⁴ A last is a mechanical form shaped like a human foot. It is used by shoemakers in the manufacture of shoes.

⁵ An "upper" is the part of a shoe that sits on top of the sole and covers the top surface of the foot.

88. Clark explains that the last-fitting upper “exactly reproduces the contour of the last upon which it is fashioned and preserves or maintain that contour in wear.” *Id.*, 1:4-7. It does this by providing for a knitted upper incorporating enmeshed heat sensitive coarse or heavy yarns, such as vinyon strands, that are laid in place and are “surrounded by the knitted structure of the fabric while maintaining their straight shape.” *Id.*, 1:50-2:1.

89. Clark discloses that “[f]rom time to time during the knitting operation relatively coarse or heavy strands of vinyon⁶ yarn are laid in place so that they lie in parallel longitudinal courses in the knitted band or web and are substantially straight throughout their length.” *Id.*, 1:45-50.

⁶ Vinyon is a synthetic continuous filament fiber made from a long-chain polymer.



Id., Fig. 1 (annotated).

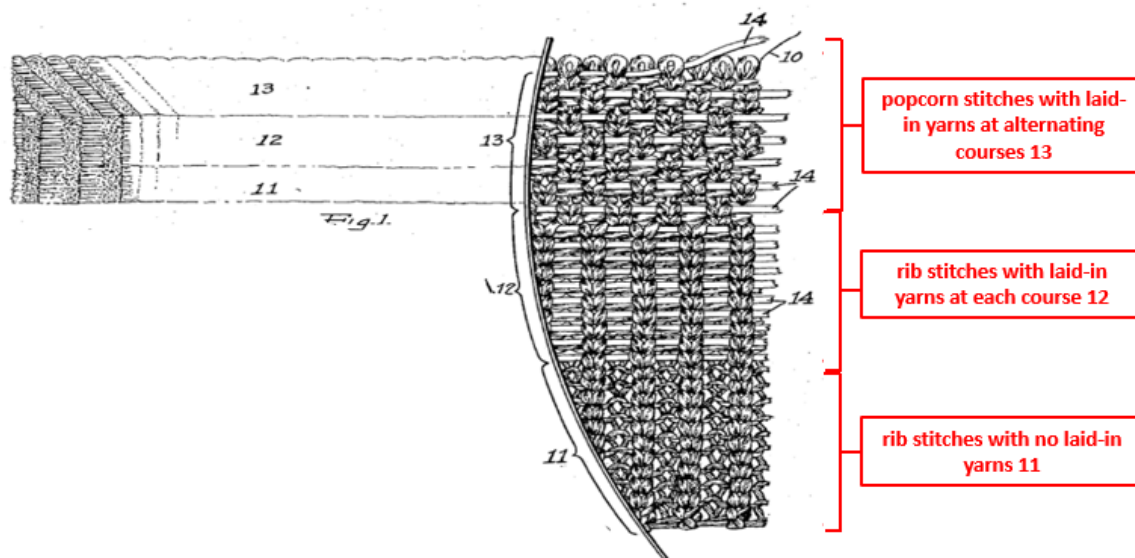
90. As shown in Fig. 1 above, the grouping of the strands is customizable, allowing for different textures throughout the shoe upper. *Id.*, 2:1-2:5. For example, “[t]he band shown in Fig. 1 is knit with a rib stitch upon a flatbed machine from chenille yarn⁷ having a plastic strand 10 twisted into it.” *Id.*, 3:1-3. A strand of material can be employed where it “may be intertwined or surrounded by the cotton or other material of the knitted strand and ordinarily will not show in the fabric.” *Id.*, 2:18-24. “Any convenient knitting stitch can be employed in section 12” and

⁷ A chenille yarn is yarn with a fuzzy pile effect which protrudes from all sides.

“in forming the section 13 any desired form of knitting stitch may be employed.”

Id., 3:27-31; 3:50-54; Fig 1 (annotated), Fig. 5 below (annotated).

91. The fabric can be knitted using either a flatbed knitting machine or a circular knitting machine. *Id.*, 2:14-17. Fig. 1, below, shows sections 11 and 12 having a rib stitch produced on a flatbed knitting machine, with section 12 also including inlaid vinyon strands, and section 11 not including laid in strands. *Id.*, 3:1-2. It also shows how section 13 has a “popcorn stitch modified by laying in vinyon strands 14,” with the vinyon strands spaced further apart. Fig. 1 also shows the adjacent distribution of the knitted fabric with two adjacent portions having laid in yarns. *Id.*, 3:1-54.



Id., Fig. 1 (annotated).

92. The adjacent sections of knitted fabric (11, 12, 13) are knitted continuously as shown in Fig. 5, below. The knitting operation proceeds until the

textile elements are removed from surrounding knitted textile structure at the parting strands. *See id.*, 4:37-46; 4:61-66; Fig. 5 below (annotated). After being removed, the upper is then placed upon a last and heat treated while tensioned “in order to soften and then contract the thermoplastic elements of the upper.” *Id.*, 4:4-7. The upper is heat treated by “steam[ing] at atmospheric pressure applied for one minute.” *Id.*, 4:15-19. This causes the thermoplastic elements, the vinyon strands, to “have increased in diameter and have contracted with the fabric in which they are embodied so that the vinyon strands and the fabric fits skin tight upon the last conforming accurately to every curve in its contour.” *Id.*, 4:21-27. Fig. 2, below, is a view in elevation of the fabric stretched upon a shoe last. *Id.*

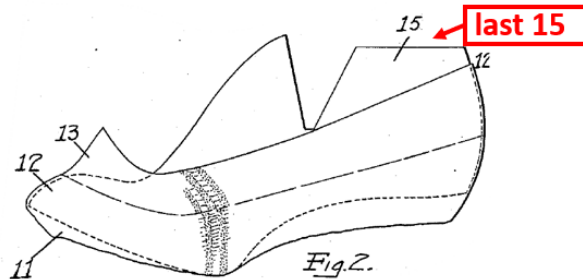
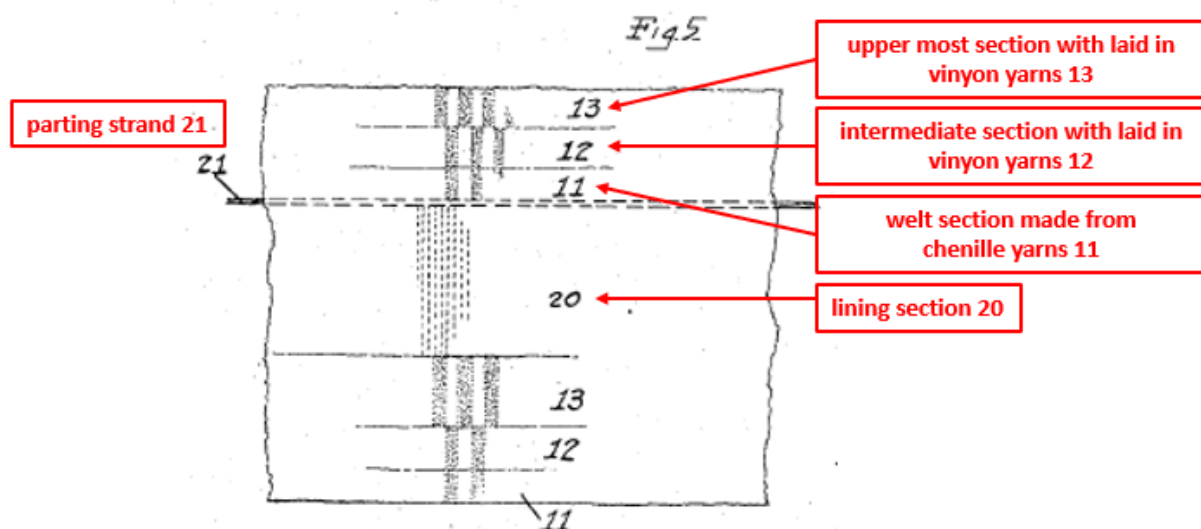


Fig. 2 (annotated).

93. After being formed to the last, the longitudinal edges created from section 11, shown in Fig. 5 below, may be lasted together across the bottom of the last. *Id.*, 3:71-74. The bottom of section 11 may form a marginal band extending about the periphery of the last bottom. *Id.*, 3:71-4:3. The complete knitted fabric is then trimmed to any desirable upper shape. *Id.*, 2:33.



Id., Fig. 5 (annotated).

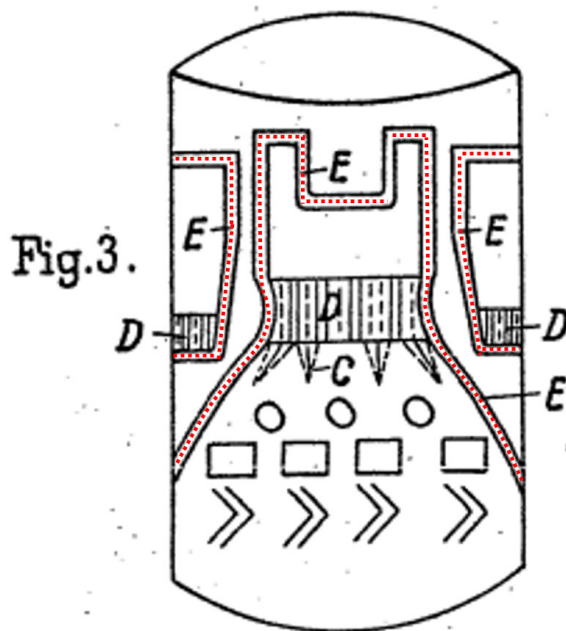
94. “The process ... results in the production of a resilient form-fitting upper such as has not been heretofore available in the shoemaking industry.” *Id.*, 4:67-70. This upper is “to be incorporated eventually in the shoe bottom.” *Id.*, 3:10.

B. G.B. Patent No. 228,917 to Müller

95. G.B. Patent No. 228,917 to Müller (“Müller”), EX1005, was issued on March 11, 1926. It was not before the Patent Office during the prosecution of the ’749 patent.

96. Müller discloses a method of introducing pearl (purl) stitches to a knitted fabric to “enable lines [] along which the fabric is to be cut.” EX1005, 1:63-67. The purl stitching outline also has the advantage of “contracting the fabric and therefore imparting to it an additional elasticity, so that it will adapt itself to the shape of the body.” *Id.*, 1:40-44. An outline of purl stitches, labeled “E” in Fig. 3, in

the knitted fabric prevents “a considerable waste of time ... since the fabric curls when unstretched and prevents a smooth cut conforming to the templet (template) from being made.” *Id.*, 1:70-76.



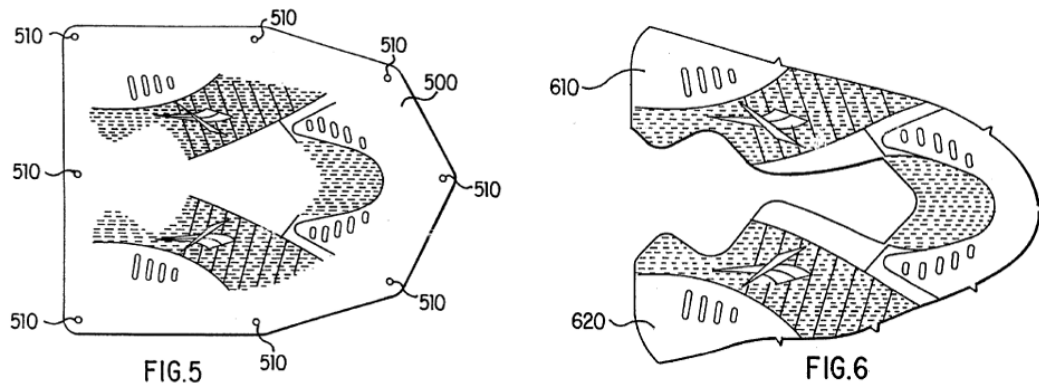
Id., Fig. 3 (annotated).

97. Müller further explains that there is an advantage to inserting the cutting lines in knitted goods to make the cutting process more efficient, as the knitted fabrics “do not lie flat, the tension is uneven and they curl up when cut.” *Id.*, 1:82-87.

C. U.S. Patent No. 6,299,962 to Davis et al.

98. U.S. Patent No. 6,299,962 to Davis et al. (“Davis”), EX1006, was issued on October 9, 2001. It was not before the Patent Office during the prosecution of the ’749 patent.

99. Davis discloses a method of manufacturing an athletic shoe that includes different textured sections in the upper. EX1006, 5:38-39. Davis discloses a shoe with a “minimal number of upper pieces thereby simplifying the manufacturing process.” *Id.*, 5:38-40. The upper material “can be single or multiple layers and constructed of various materials such as ... various knit and woven fabrics or other material used in the shoe construction and known to those skilled in the art.” *Id.*, 7:52-58 (emphasis added); Figs. 5 and 6.



Id., Figs. 5 and 6.

100. “By interchanging the removable texture plates disposed in the upper⁸ plate of the embossing mold, different textures and appearances for the upper can be created using the same basic embossing mold.” *Id.*, 3:26-29. “[D]ifferent textures

⁸ The adjective “upper” when used with noun “plate” does not refer to the shoe upper.

and appearances can be created using the same basic upper pattern, thereby, reducing retooling time and costs.” *Id.*, 3:39-43. These texture inserts/plates can be “rearranged within pattern lines.” *Id.*, 6:45-59.

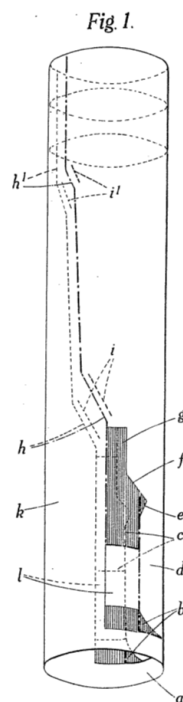
101. After molding the upper material “is ready to be die cut to the desired shape . . . and incorporated into the actual upper construction.” *Id.*, 8:52-54. “The lasted upper is cemented, molded or sewn to the desired sole to complete the shoe construction.” *Id.*, 11:38-40.

D. G.B. Patent No. 500,2300 to Mills

102. British Patent Specification 500,230 to Mills (“Mills”), EX1007, was accepted in February 1939. It was not before the Patent Office during the prosecution of the ’749 patent.

103. Mills discloses a method of manufacturing a knitted stocking, which is an article of footwear. EX1007 at 1:19-25. Mills describes an improved method of manufacturing stockings that allows for efficient production of material for the stocking without requiring variation in the number of wales. *Id.*, 1:5-15; 2:53-63. The entire stocking is “knitted on the same machine,” including portions that make up the leg, heel, and foot. *See id.*, 5:67-75. Mills describes using a circular knitting machine with a diameter larger than the maximum width of the stocking blank. *Id.*, 5:63-75. During the knitting process, portions of the material may be “spliced or knitted of a stouter thread” to create reinforced sections of the stocking. *Id.*, 6:77-

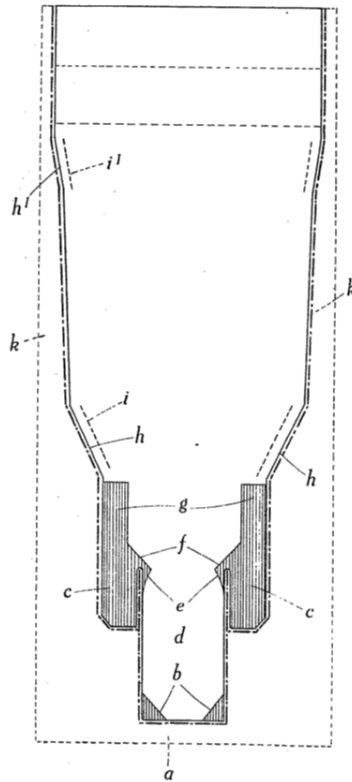
85. Fig. 1, below, shows a stocking blank knit as part of a tubular section of fabric with reinforced sections identified with shading.



Id., Fig. 1.

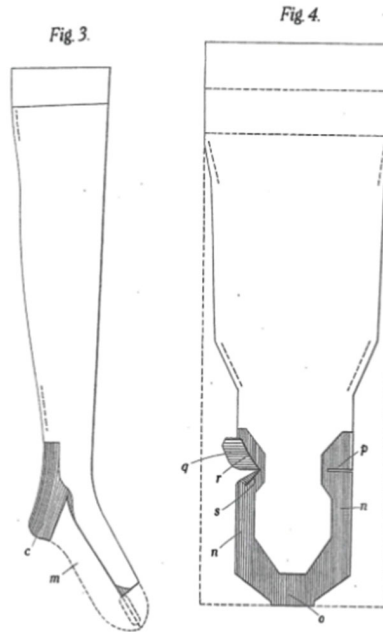
104. Mills also explains that patterns and texture may be incorporated into the fabric, explaining that “mock-fashioning marks may be produced along suitable parallel, but preferably divergent, lines by tuck stitches or other means, such as loop transference.” *Id.*, 6:30-34. Additionally, Mills discloses that “the lines, along which the fabric is to be cut to, produce the blank may be indicated by tuck stitches or other stitch variation.” *Id.*, 6:34-43. This creates an outline, shown in Fig. 2 labeled with *k*, that allows the shaped blank to be cut away from the surrounding knitted textile structure. *See id.*, 2:117-123.

Fig 2.



105. To make the stocking, Mills explains that the stocking blank must be removed from the surrounding “waste” material. *Id.*, 6:44-46. “[T]he seaming operation follows the cutting, and therefore the method includes the steps of cutting from the fabric a stocking blank of the requisite shape and then seaming together the edges of the shaped blank to produce the fashioned leg tube.” *Id.*, 5:110-16.

106. Fig. 3 shows the shaped blank seamed to form the fashioned stocking. Fig. 4 illustrates a modified form of a fashioned blank cut from a seamless tube for producing a stocking having a French foot. *Id.*, 2. A “French foot” is defined as a common type of foot on a full-fashioned stocking. The seam on the back of the stocking continues down the center of the sole. Ex. 1012, 297.



Id., Figs. 3 and 4.

E. U.S. Patent No. 3,429,147 to Perrier, et al.

107. U.S. Patent No. 3,429,147 to Perrier, et al. (“Perrier), EX1008, was issued February 25, 1969. It was not before the Patent Office during the prosecution of the ’749 patent.

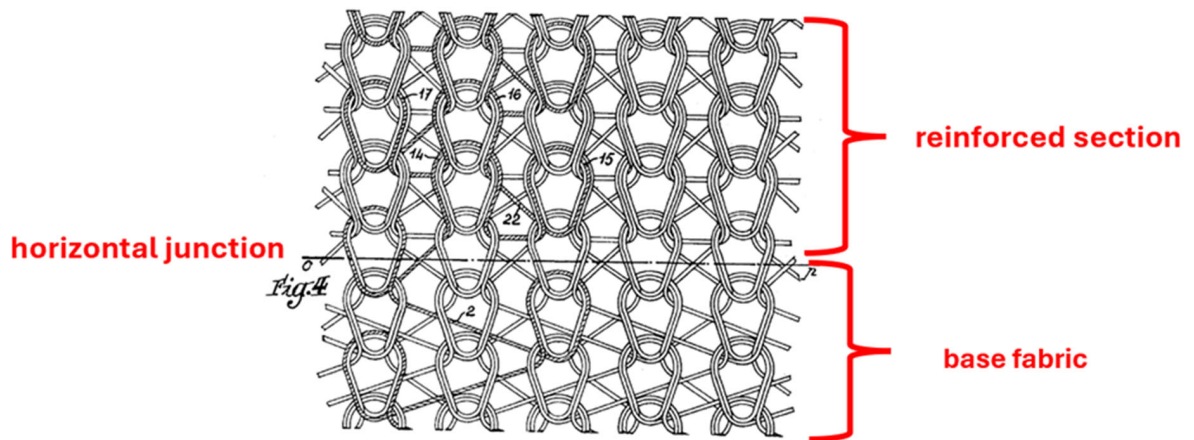
108. Perrier disclosed a method to produce a seamless stocking on a multi-needle bank warp-knitting machine provided with a double row of needles. EX1008, 1:32-34. In a preferred embodiment of the invention, the tubular fabric is knitted on a raschel warp knitting machine having self-acting needles. *Id.*, 6:54-56. A POSA would understand that if a knitting machine has self-acting needles, it is a “jacquard” knitting machine.

invention.



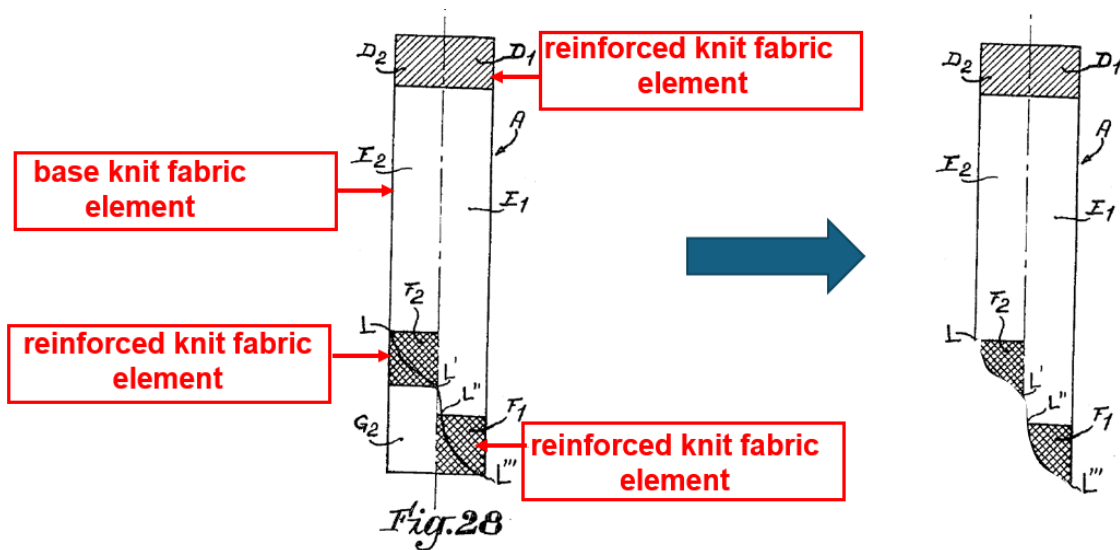
Id., Fig. 2 (annotated).

flat strip of fabric namely a reinforced section above and a base fabric below. *Id.*, 2:25-28.



Id., Fig. 4 (annotated).

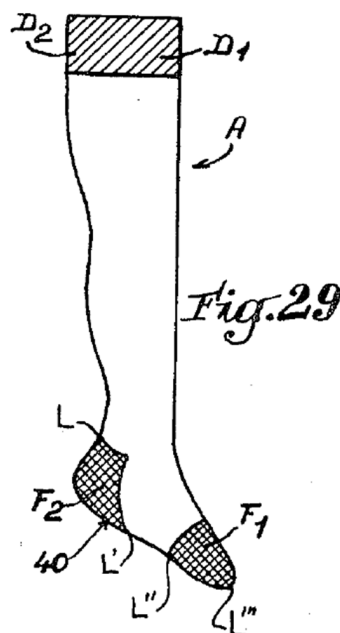
111. Fig. 28, below, shows the tubular fabric of FIG. 2, laid flat before cutting and sewing under the foot section. The tubular knit fabric is cut along the line represented as L-L'-L''-L'''.



Id., Fig. 28 (annotated).

The tubular fabric that has a portion removed is then sewed up under the foot section in an underfoot seam 40. *Id.*, 6:66-67. This method of seaming is known as a “French Foot.” EX1013, 3.

112. Fig. 29, below, shows the finished stocking [footwear] after heat-setting.⁹ EX1008, 3:3.



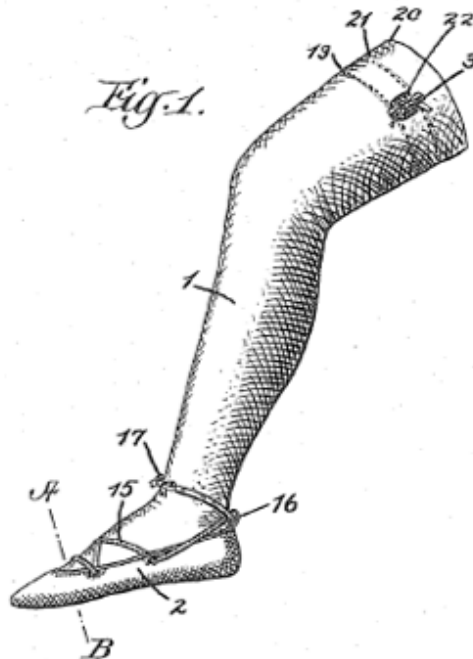
Id., Fig. 29.

⁹ “Heat-setting” is a well-known to a POSA. It is a textile process for imparting a permanent shape to a textile item after its been knit or woven.

F. U.S. Patent No. 1,093,032 to Cadenas

113. U.S. Patent No. 1,093,032 to Cadenas (“Cadenas”), EX1009, was issued on April 14, 1914. It was not before the Patent Office during the prosecution of the '749 patent.

114. Cadenas discloses a combined shoe and stocking. EX1009, 1:12; Fig. 1.



Id., Fig. 1.

115. The stocking portion is made of a stockinet, jersey, or another elastic material so it can readily conform to the figure of the wearer. *Id.*, 1:28-32. The shoe portion is “made of cork, linoleum, or other suitable waterproof, non-absorbing substance covered by layers of canvas or other suitable material upon the opposite

sides.” *Id.*, 1:34-39. The sole portions of the stockings are first drawn through the portion that secures the shoe on both sides allowing the stocking and shoe “stitch[ed] through all four layers.” *Id.*, 1:44-48. There is also the addition of a “vamp”¹⁰ ... at its upper edge ... with eyelets for the reception of the tape or ribbon, which is laced through the loop attached to the heel portion of the vamp and then tied around the ankle. *Id.*, 64-72. This “assist[s] in securely holding the shoe portion in place.” *Id.*, 73.

VIII. OVERVIEW OF GROUNDS

116. Below is a table listing the grounds of unpatentability for the ’749 patent:

Ground	Reference(s)	Basis	Challenged Claims
1	Clark	§102	1, 2, 5-9, 11-13, 15-19, & 21
2	Clark in light of the knowledge of a POSA	§103	9, 10, 19 & 20
3	Clark in combination with Müller	§103	3, 4, & 14

¹⁰ A “vamp” is the part of a shoe upper covering especially the forepart of the foot and sometimes also extending forward over the toe or backward to the back seam of the upper.

Ground	Reference(s)	Basis	Challenged Claims
4	Clark in combination with Davis	§103	12
5	Mills	§102	1-8, 11, 13-18, & 21
6	Mills in combination with the knowledge of a POSA	§103	9, 10, 19 & 20
7	Mills in combination with Cadenas	§103	12

IX. GROUND 1: Clark Anticipates Claims 1, 2, 5-9, 11-13, 15-19, and 21

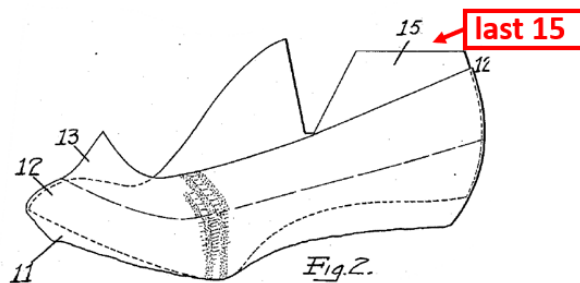
117. Clark describes a method of manufacturing an article of footwear as recited in the challenged claims. A POSA would have considered the subject matter of Clark to be a well-known process for manufacturing knitted textile article like a shoe upper. Clark’s “last-fitting upper” is produced on a knitted material sheet, cut out, and sewn to itself to create an article of footwear. This cut-and-sew process for knit uppers like Clark was ubiquitous by 2004 and would have been known to a POSA.

A. Clark Anticipates Claim 1

1. Preamble

118. The preamble of claim 1 recites “[a] method of manufacturing an article of footwear.”

119. Clark describes a method for manufacturing an article of footwear by producing an upper from a knitted material sheet in a novel process that creates a “last-fitting upper.” EX1004, 1:1-3. Clark states that his motivation for the described method was to “produce a satisfactory shoe upper” to fill the “urgent demand in women’s shoes for a great variety of ornamental and different color effect.” *Id.*, 1:5-13. Fig. 2, below, shows this “last-fitting upper” stretched upon a shoe last. A shoe is an article of footwear.



120. As a result, Clark discloses all elements of the preamble.

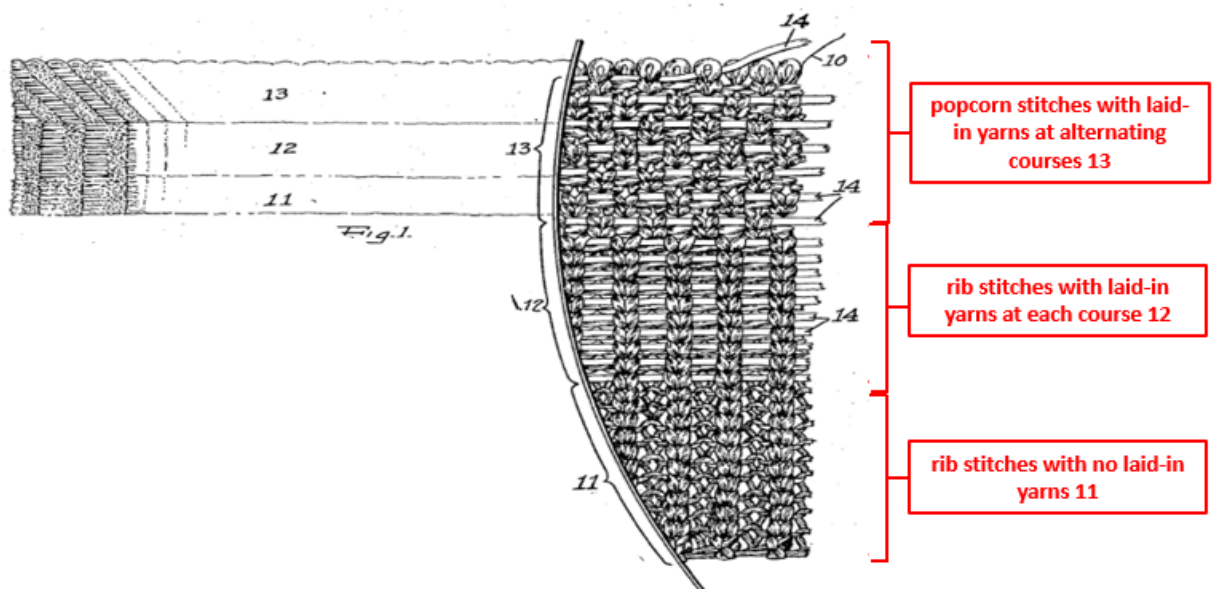
2. Limitation 1.a

i. “simultaneously knitting a textile element with a surrounding textile structure”

121. The upper of Clark is a textile element. A POSA would have understood that “simultaneously knitting” in the context of the ’749 patent means forming one or more textile fabric elements and a surrounding textile fabric structure as part of a single textile fabric during the knitting process. The ’749 patent’s specification provides that “a first textile element 40 and a second textile element 40

may be *simultaneously* formed in a single textile structure 60.” EX1001, 7:58-60 (emphasis added). This is the only mention of “simultaneous” in the specification of the ’749 patent.

122. As shown in Fig. 1 (annotated) below, the textures within the textile element of Clark (represented by sections 11, 12, and 13) are knitted into a portion of the textile structure. The textile structure is primarily knitted of “any yarn suitable for machine knitting.” EX1004, 1:42-43. The “relatively coarse or heavy [vinyon] strands” are “laid in place” during the knitting operation simultaneously with the surrounding structure in order to create a single composite textile with an upper to be made from it. *Id.*, 1:45-50. Fig. 1 (annotated), below, shows how the texture portions with and without strands of vinyon yarn (e.g., sections 11, 12, and 13) are part of a larger textile structure.



Id., Fig. 1 (annotated); *see also* Fig. 5 below (showing sections 11, 12, and 13 in the context of the larger piece of fabric).

123. As a result, Clark discloses all elements of this limitation.

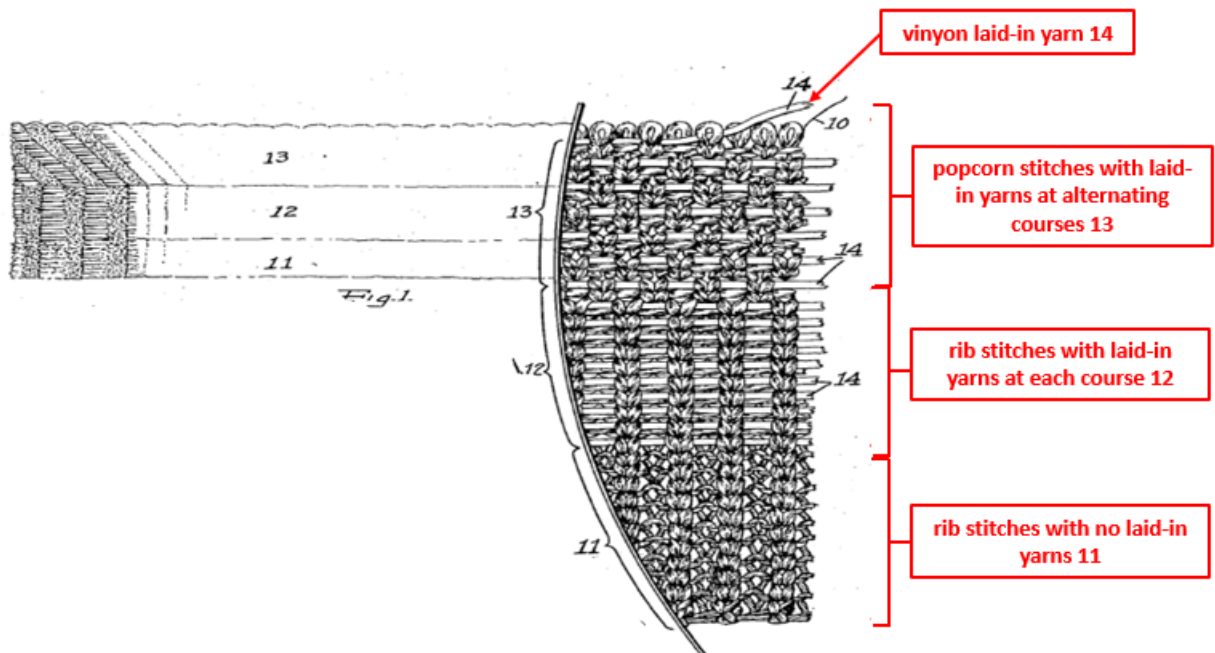
ii. **“the knitted textile element having at least one knitted texture that differs from a knitted texture in the surrounding knitted textile structure”**

124. The '749 patent provides that different textures in a single knitted structure may be formed from varying yarn type or stitch configuration. EX1001, 9:61-65, 3:33-37. According to the '749 patent, “yarn may be formed from cotton, wool, elastane, rayon, nylon, and polyester,” and “[e]ach of these yarn types may impart differing properties to the areas corresponding with textures.” *Id.*, 9:61-65. In addition, the '749 patent describes that different areas can be formed of different stitch configurations which “impart[s] varying textures to a surface of the textile element.” *Id.*, 3:33-37.

125. Clark discloses two ways that textures are incorporated into the knitted textile—through the incorporation of vinyon strands and through the use of different stitches. Clark describes that “during the knitting operation **relatively coarse or heavy strands of vinyon yarn are laid in place** so that they lie in parallel longitudinal courses in the knitted band or web and are substantially straight throughout the length.” EX1004, 1:45-50 (emphasis added). These strands are knitted “without any disturbance to the knitted structure of the fabric and [they] are

merely enmeshed and surrounded by the knitted structure of the fabric.” *Id.*, 1:51-55. The “vinyon strands” are represented by the straight shaped laid-in yarns shown in sections 12 and 13 of Figure 1.

126. “The relatively heavy and coarse” vinyon strands create a knitted texture that is different from the knitted texture of the portions without the vinyon strands. *Id.*, 1:45-50. For example, in Figure 1, the texture of section 12 is different than that of section 11 as a result of the presence of inlaid vinyon strands. The frequency of the inlaid vinyon strands can also be varied to create different textures. For example, in Figure 1, the texture of section 12 is also different than that of section 13 as a result of the differently spaced vinyon strands.



Id., Fig. 1 (annotated).

127. Additionally, Clark explains that different stitches can be used in knitting different sections of the upper. For example, in Fig 1 (annotated), above, two different stitch patterns are shown. Sections 11 and 12 show rib stitching (with and without inlaid vinyon strands, respectively), and section 13 shows stitching in the “well-known popcorn stitch.” Clark also describes that “any convenient knitting stitch can be employed in section 12” (*id.*, 3:27-28) and “[i]n forming the section 13 any desired form of knitting stitch may be employed” (*id.*, 3:50-54). A POSA would have known that the different stitches used in the different sections of the knitted material create different textures. Therefore, Clark discloses creating a unitary, multi-textured, composite textile through both knitting and inlaying strands.

128. Clark further discloses that the shoe upper is made from the knitted material by either joining the ends of the fabric so that the vinyon strands form a continuous band around the foot, or using a circular knitting machine to knit a seamless band that includes the textures described. *Id.*, 2:6-17; 3:55-63 (“The composite knitted strip...is made of sufficient length to form an endless band which may be worked over the last so as to embrace it longitudinally when the two ends of the band are joined; or as already suggested, the band may be knitted in a circular knitting machine in endless form so the step of joining the ends of the flat band is made unnecessary.”). Each section of the material that includes the portion that will become an upper is cut away from similar portions of the material at a “parting

strand.” *Id.*, 4:43-50. The knitted material is placed on a last and heat treated to form the desired shaped of the upper. *Id.*, 4:4-36. After heat treating, the exposed edges of the material of the upper can be “trimmed in any desired outline.” *Id.*, 4:61-66. In this trimming process, only portions of the material at the bottom of the shoe, and potentially at the top of the shoe, would have exposed edges that could be trimmed. That is, in embodiments that do not include the lining section 20, section 11 at the bottom of the upper, and section 13 at the top of the upper would be the only sections to have exposed edges to trim. In embodiments that include the lining section 20, section 20 would be folded over to form the lining and the exposed edge of 20 would also be trimmed with section 11. As a result, at least section 12, and in some embodiments section 13, would not be trimmed, and therefore, the texture of section 12 (and section 13) would not be present in the textile material that is removed as part of the surrounding textile material and not incorporated into the upper. Therefore, Clark discloses knitting a textile element (the shoe upper) that has at least one texture (section 12, and possibly section 13) that is different from the texture of the material that surrounds the textile element

129. As a result, Clark discloses all elements of this limitation. Taken together, Clark discloses all elements of limitation 1.a.

3. Limitation 1.b: “removing the knitted textile element from the surrounding knitted textile structure”

130. Clark discloses limitation 1.b because Clark discloses that the knitted textile element is cut out of a larger piece of knitted material.

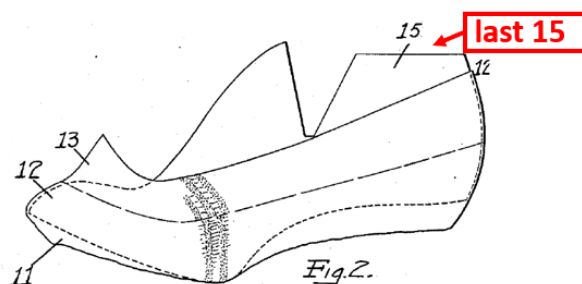
131. As Fig. 5 shows, Clark describes a knitted material that is not knitted in the shape or form of an upper, and therefore, excess material that is not incorporated into the upper must be cut away. As discussed above, the portion of the material that is made into the upper is first cut away from surrounding material at the parting strands between “similar composite strip[s]” that include the uppers. *Id.*, 4:37-50. Additionally, the upper is further cut away from surrounding material when the exposed edges of the fabric are trimmed to the desired outline of the upper. *Id.*, 4:61-66. The material that is trimmed from the one or more exposed edges of the lasted knit upper is not part of the finished upper, making it part of the surrounding textile structure. Clark, therefore, discloses removing the textile element (the upper) from the surrounding textile structure.

132. As a result, Clark discloses all elements of limitation 1.b.

4. Limitation 1.c.: “incorporating the knitted textile element into the article of footwear”

133. Clark discloses limitation 1.c. Clark provides that “the process ... described results in the production of a resilient form-fitting upper such as has not been heretofore available in the shoemaking industry....” *Id.*, 4:67-70. This is a “process of making fabric shoe uppers providing a textile knitted band having

vinyon strands.” *Id.*, 5:9, 5:24-25. This knitted band is then “stretch[ed] ... longitudinally upon a last ... and then steam[ed] ... convert[ing] the band as a whole into a resilient self-sustained last-fitting [upper].” *Id.*, 5:28-6:10. Fig. 2, below, shows this last-fitting upper stretched upon a shoe last. A shoe is an article of footwear. Fig. 2, below, shows a cross section of the knitted band shrunk to the last after steaming.



Id., Fig. 2 (annotated).

134. Clark further states that the upper is “to be incorporated eventually in the shoe bottom.” *Id.*, 3:9-10.

135. As a result, Clark discloses all elements of limitation 1.c. Taken together, Clark discloses all elements of claim 1.

B. Clark Anticipates Claim 13

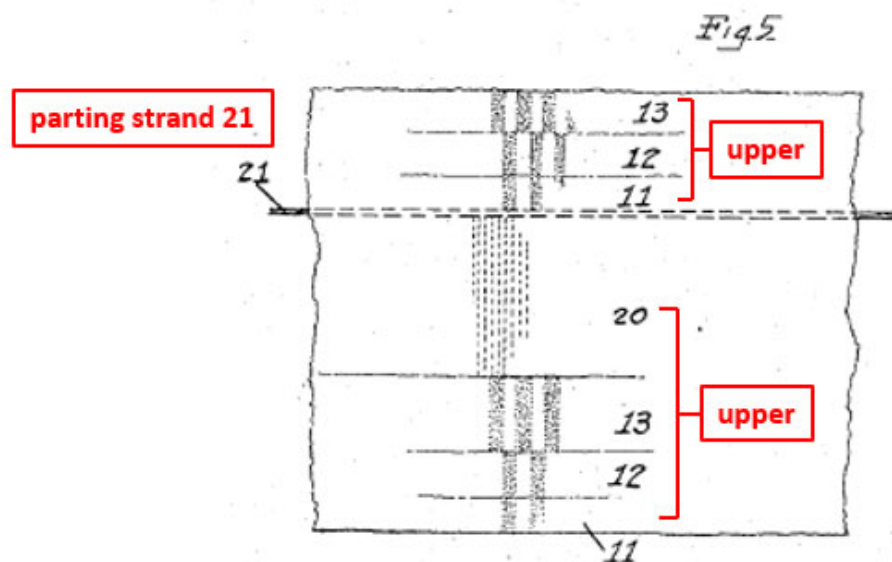
136. Claim 13 is similar to claim 1, and an such, Clark similarly discloses all elements of claim 13.

1. Preamble

137. The preamble of claim 13 is the same as the preamble of claim 1. It is disclosed by Clark for the same reasons. *See* Section IX(A)(1).

2. Limitation 13.a: “knitting a first textile element and a second textile element simultaneously with knitting a surrounding textile structure, the first knitted textile element located within a first portion of the knitted textile structure, the second knitted textile element located within a second portion of the knitted textile structure”

138. As explained above, Clark discloses simultaneously knitting a textile element and a surrounding textile structure. *See* Section IX(A)(2)(i)-(ii). Clark additionally discloses knitting a fabric that includes two textile elements within the larger textile structure. Specifically, Clark discloses that “the knitting operation may proceed until a band is provided of sufficient width to supply bands for two or more uppers set off from each other in the fabric by a parting strand.” EX1004, 4:37-46. Additionally, Clark discloses that the knitting process may continue in a manner where one section containing an upper is followed by another section containing an upper, separated by a parting strand, as shown in Fig. 5. *Id.*, 4:43-50, Fig. 5.



Id., Fig. 5 (annotated). The different sections containing the uppers, i.e., the sections depicted in Figure 5 and material of sufficient width to supply bands of two or more uppers described in Clark, are produced simultaneously as a single knitted textile structure. The material is knitted as a larger piece of material with sections having the various desired textures (sections 11, 12, 13, and 20). The sections are cut away from each other, and after being separated from adjoining sheets, are shaped on a last and trimmed away from the remaining surrounding textile structure to form the desired outline of the upper. Clark, therefore, discloses a material that includes multiple sections that contain textile elements along with corresponding surrounding textile structure.

139. As a result, Clark discloses all elements of limitation 13.a.

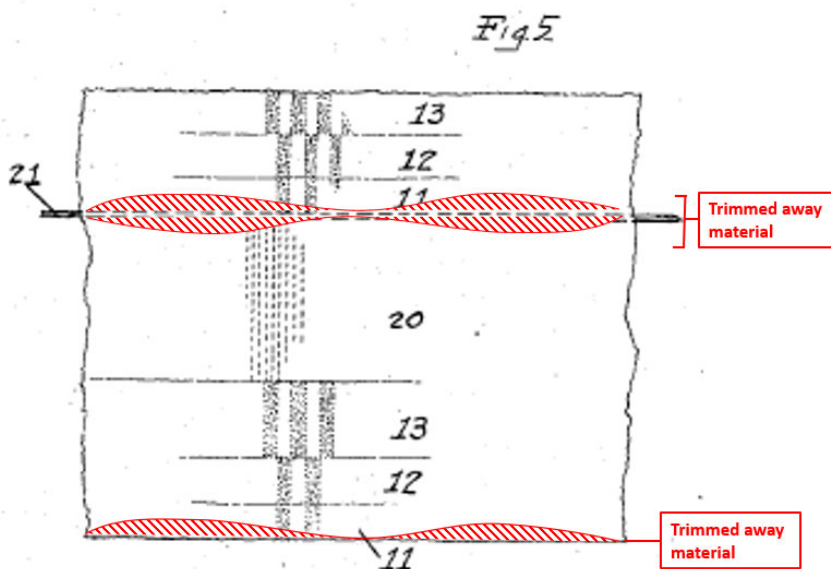
3. **Limitation 13.b: “varying at least one of the types of stitches or the types of yarns in the knitted textile structure to impart a texture to**

the first and second knitted textile elements different from a texture of the knitted textile structure extending between the first and second portions”

140. As discussed above, Clark describes that the knitted material may be knit such that it includes two or more uppers, and the uppers are cut and trimmed from that material. *See* Section IX(A)(2)-(3). Therefore, the larger material knitted in Clark includes both the upper and material between the uppers that is cut away (the surrounding textile structure).

141. As also discussed above, Clark discloses varying the types of stitches or types of yarn to create different textures in different sections of the material, and discloses a method of making an upper in which the material incorporated in the upper contains a texture (at least the texture of section 12) that is different from the texture of the surrounding textile structure. *See* Section IX(A)(2)(i)-(ii). Clark additionally discloses that there would be surrounding textile structure that extends between the portions of the material used for the uppers. In the embodiment shown in Figure 5, the portion of the material shown includes space for one upper at the bottom of the figure, and the beginning of a portion for a second upper at the top of the figure. As discussed above, during the process of forming the uppers in this embodiment, portions of section 20 and section 11 may be trimmed to any desired shape once the upper is formed to the last. As annotated in Figure 5 below, that

would result in the removal of portions of sections 11 and 20, but not sections 12 and 13.



Id., Fig. 5 (annotated). Therefore, Clark discloses that a portion of the material extends between the uppers and this material contains a different texture (texture of section 11 and/or section 20) from at least one texture in the upper (textures of sections 12 and 13).

142. As a result, Clark discloses all elements of limitation 13.b.

4. Limitation 13.c: “removing the first and second knitted textile elements from the knitted textile structure”

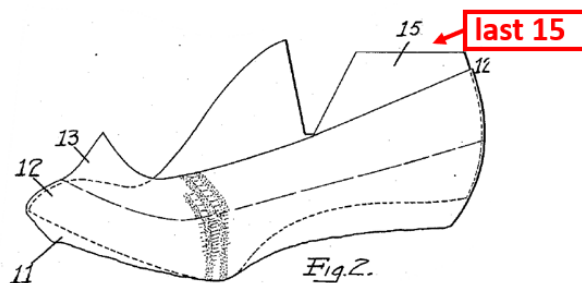
143. As explained above, Clark discloses that the material containing one upper is cut away from other sections of material containing other uppers, and that the surrounding material is further trimmed away from the exposed edges of the

upper after forming to the last. *See* Section IX(A)(3). A POSA would have understood that this would need to occur for each of the uppers made as part of the larger knitted fabric, and therefore, Clark discloses removing more than one textile elements from a knitted textile structure.

144. As a result, Clark discloses all elements of limitation 13.c.

5. Limitation 13.d: “incorporating at least one of the first and second knitted textile elements into the article of footwear”

145. As discussed above, Clark provides that “the process ... described results in the production of a resilient form-fitting upper such as has not been heretofore available in the shoemaking industry....” EX1004, 4:67-70. Fig. 2, below, shows this “last-fitting upper” stretched upon a shoe last. A shoe is an article of footwear. A POSA would have understood that each of the uppers made as part of Clark’s larger knitted textile would be made into shoes.



Id., Fig. 2 (annotated).

146. As a result, Clark discloses all elements of limitation 13.d. Taken together, Clark discloses all elements of Claim 13.

C. Clark Anticipates Claim 2

147. Claim 2 depends from claim 1 and recites: “wherein simultaneously knitting a textile element with a surrounding textile structure includes simultaneously knitting a plurality of textile elements.”

148. As explained above, Clark discloses a method of making two or more uppers in a single textile structure. *See* ¶Section IX(B)(2).

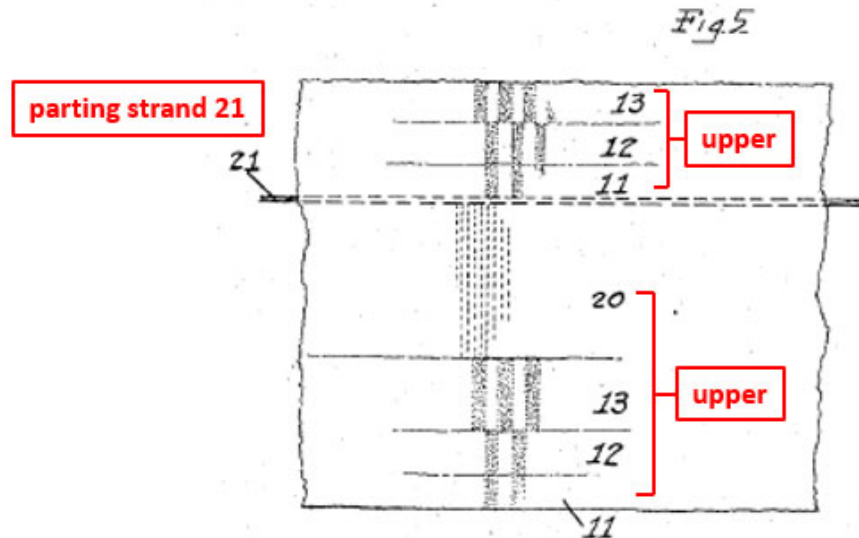
149. As a result, Clark discloses all elements of claim 2.

D. Clark Anticipates Claims 5 and 15

150. Claims 5 and 15 depend from claim 1 and 13, respectively, and add the limitation: “wherein the knitted textile element has a substantially planar configuration upon removal from the surrounding knitted textile structure.”

151. Clark discloses that “[t]he fabric may be knitted as a strip on a flat-bed knitting machine” and that the resulting flat knit strip will be “formed into a continuous band by having its ends joined” EX1004, 2:13-14. A POSA would have understood that a flat-bed knitting machine produces fabrics with a substantially planar configuration. Each portion of material that will be formed into a single upper will retain its planar configuration after the upper portions are separated at the parting strands. *Id.*, 4:49-59. In the embodiment shown in Figure 5, when the material is cut at the parting strand 21, the upper at the bottom of the

figure is removed from the surrounding material that remains on the edges of section 20 of the upper at the top of the figure.



Id., Fig. 5 (annotated).

152. A POSA would have understood that once cut at a parting strand 21, the material would retain its planar configuration.

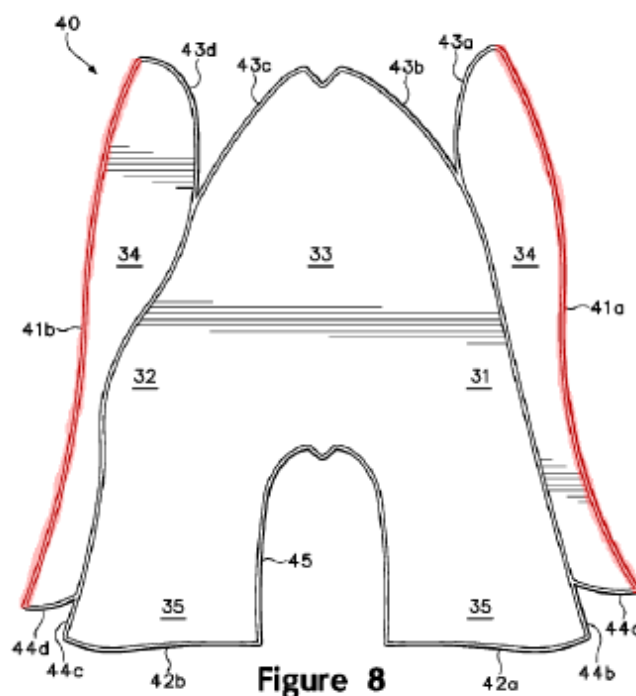
153. As a result, Clark discloses all elements of claims 5 and 15.

E. Clark Anticipates Claims 6, 7, and 16-18

154. Claim 6 and 16 depend from claim 1 and 13, respectively, and add the limitation: “wherein the knitted textile element includes longitudinal edges formed when the knitted textile element is removed from the surrounding knitted textile structure.” Claims 7 and 17 depend from claim 6 and 16, respectively, and add the limitation: “wherein the longitudinal edges are joined together to define at least a portion of a void for receiving a foot.” Claim 18 depends from claim 16 and recites:

“wherein incorporating the first knitted textile element into the article of footwear includes securing the longitudinal edges of the first knitted textile element to form a seam that extends along a lower region of an upper.”

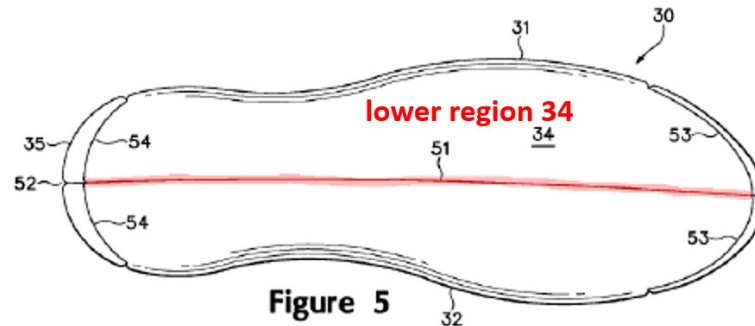
155. The phrase “longitudinal edges” is not used by the ’749 patent outside of the claims. But the ’749 patent describes that a textile element 40, which forms part of an upper, includes edge 41a and edge 41b. EX1001, 5:62-64. Edge 41a (colored red) and edge 41b (colored red) are illustrated in Figure 8 below.



Id., Fig. 8 (annotated).

156. According to the ’749 patent, edge 41a and edge 41b are secured to form seam 51 (colored red) that is illustrated in Figure 5 below and described as “extend[ing] along the longitudinal length of lower region 34.” EX1001, 5:50-52,

5:62-6:5. “Stitching, an adhesive, or heat bonding, for example, is then utilized to secure edge 41a and edge 41b.” *Id.* at 6:11-13; *see also id.*, 6:9-11.



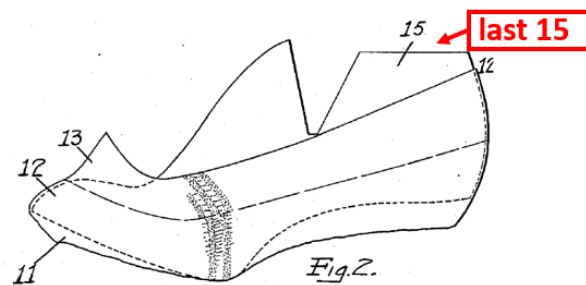
Id., Fig. 5 (annotated).

Therefore, a POSA would have understood that the longitudinal edges referred to in claims 6, 7, and 16-18 would include edges of the textile element that are cut from the surrounding textile structure and extend lengthwise along some portion of the article of footwear.

157. Clark discloses the additional limitations of claims 6, 7, and 16-18. Clark discloses that the “composite knitted strip ... is made of sufficient length to form an endless band which may be worked over the last so as to embrace it longitudinally when the two ends of the band are joined” EX1004, 3:55-59. Clark goes on to explain that “the two ends of the strip are united by stitching or binding corresponding to the back seam usually found in uppers.” *Id.*, 3:63-66. Clark also discloses that “[t]he welt section 11 is brought in under the last bottom

and the inner edges of this section may be lasted together across the bottom of the last.” *Id.*, 3:71-74.

158. Fig 2, below, shows the shoe last 15 in the shape of the human foot. A shoe last is a general representation of a foot that is used to determine shoe fit, design, and shape. A POSA would have understood that the textile structure disclosed in Clark would wrap around the shoe last, and when joined at the longitudinal edges, would form a portion of a void for receiving a foot. Clark additionally discloses that the longitudinal edges may be joined along the bottom of last, which would also be the bottom of the upper.



Id., Fig. 2 (annotated).

159. As a result, Clark discloses all elements of claims 6, 7, and 16-18.

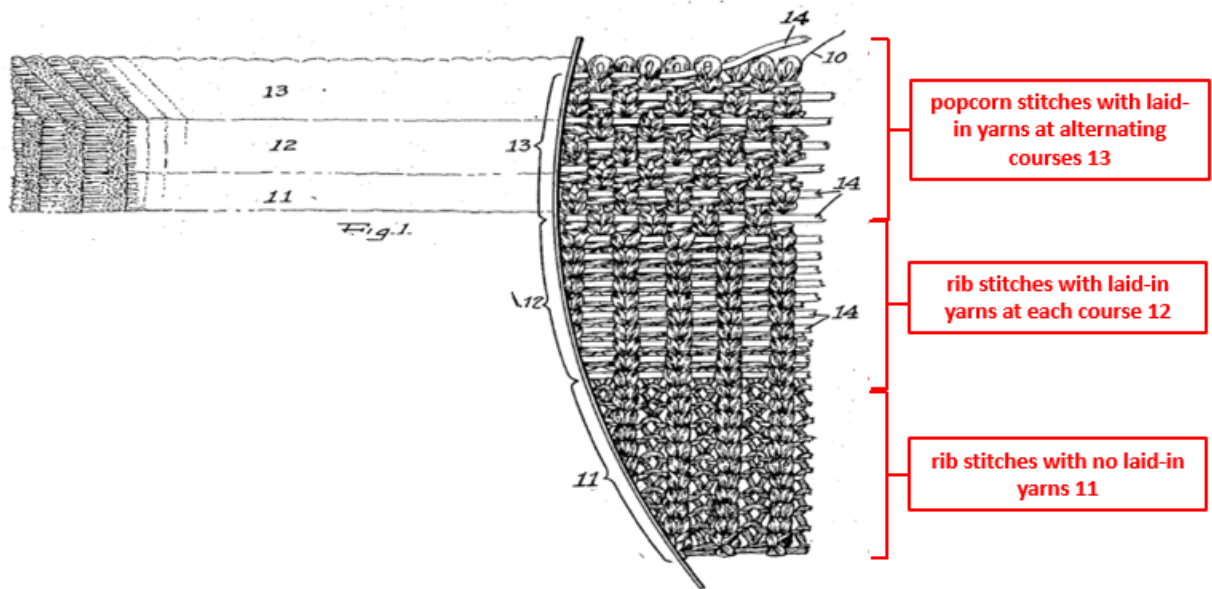
F. Clark Anticipates Claims 8, 11, and 21

160. Claim 8 depends from claim 1 and recites: “wherein the knitted textile element has a plurality of different knitted textures formed by varying at least one of the stitch type and the yarn type.”

161. Claims 11 and 21 depend from claim 1 and 13, respectively, and recite: “wherein simultaneously knitting a textile element with a surrounding textile structure includes forming the knitted textile element to include a first area and a second area with a unitary construction, the first area being formed of a first stitch configuration, and the second area being formed of a second stitch configuration that is different from the first stitch configuration to impart varying textures to a surface of the knitted textile element.”

162. It is my understanding from counsel that, as a legal principle, when a claim phrases a group of structures as an alternative, the claim is anticipated if any member of the group of structures is disclosed in the prior art. Thus, I understand that a process which varies either the stitch type or the yarn type (or both) would disclose the limitations of claim 8.

163. As discussed above, Clark discloses creating various textures by varying the stitches (e.g., rib stitches in 11 and 12 as compared to the popcorn stitch in 13) and with different yarn types (e.g., in-laid vinyon strands in 12 as compared to no vinyon strands in 11). *See* Section IX(A)(ii), above. Clark also discloses making an upper that includes at least two different textures using different stitch configurations. *See* Section XI(B)(3). As seen in Fig. 1, below, the knitted textile element shows a portion of the upper with three distinct areas with different textures.



EX1004, Fig. 1 (annotated).

164. A POSA would understand Clark's upper to be a textile element with varied textures formed with a unitary construction because it is made as a single knitted fabric.

165. As a result, Clark discloses all elements of claims 8, 11, and 21.

G. Clark Anticipates Claims 9 and 19

166. Claims 9 and 19 depend from claim 1 and 13, respectively, and recite: "wherein simultaneously knitting a textile element with a surrounding textile structure includes utilizing a wide-tube circular knitting machine."

167. Clark discloses claims 9 and 19. As explained above, Clark discloses all limitations of claims 1 and 13. Clark further discloses that the fabric for the upper can be knitted using either a flatbed knitting machine or a circular knitting machine.

Id., 2:14-17. Clark explains that if knitted on a circular knitting machine, the diameter would be such that the tube would wrap around the last longitudinally—horizontally around the foot toe to heel—in an uninterrupted manner. *Id.*, 3:60-63. Therefore, the circular knitting machine used to make the uninterrupted band would need to have a diameter large enough to encompass the cross sectional perimeter of the widest portion of an adult foot, and would therefore be a “wide-tube circular knitting machine” of the ’749 patent.

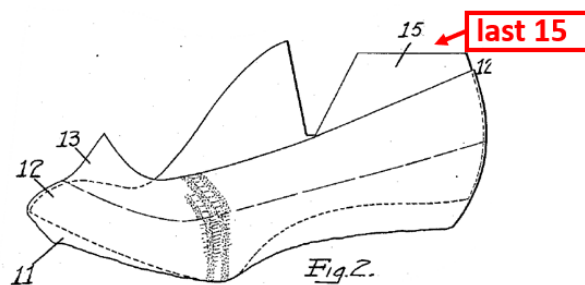
168. As a result, Clark discloses all elements of claims 9 and 19.

H. Clark Anticipates Claim 12

169. Claim 12 depends from claim 1 and recites: “wherein incorporating the knitted textile element into the article of footwear includes securing edges of the knitted textile element to form a seam that extends along a lower region of an upper and securing the upper to a sole structure.”

170. Clark discloses claim 12. As explained above, Clark discloses all limitations of claim 1. Clark further discloses that “the invention relates primarily to shoemaking and consists in a novel process of making of textile material a last-fitting upper.” *Id.*, 1:1-3. Clark specifies that his inspiration for the invention was the “many attempts ... to produce a satisfactory shoe upper from a knitted or woven textile materials ... when there has been urgent demand in women’s shoes for a great variety of ornamental and different color effect.” *Id.*, 1:5-13.

171. As discussed above, Clark discloses that the bottom of the upper may be lasted together across the bottom of the last. *See* Section IX(E). A POSA would have understood that the upper disclosed in Clark would necessarily be attached to a sole in order to be functional as footwear. For example, Fig. 2 of Clark (annotated below) shows the textile element laid over the last, and Clark discloses that the upper will hold that shape after being treated. *Id.*, 4:27-31. As pictured, the upper formed in the shape depicted in Fig. 2 would necessarily require a sole with a heel attached to the bottom of the upper to allow it to be worn as a functional shoe. Additionally, Clark explicitly mentions that the upper is “to be incorporated eventually in the shoe bottom.” *Id.*, 3:9-10. Therefore, Clark inherently discloses attaching a sole to the textile element.



Id., Fig. 2 (annotated).

172. As a result, Clark discloses all elements of claim 12.

X. GROUND 2: Claim 3, 4, and 14 are Obvious in Light of Clark and Müller

173. Claim 3 depends from claim 1 and recites “wherein simultaneously knitting a textile element with a surrounding textile includes knitting an outline of the knitted textile element.” Claim 4 depends from claim 1 and adds the limitation: “wherein the outline has the shape and proportion of the knitted textile element.” Claim 14 depends from claim 13 and recites “wherein knitting a first textile knitted element simultaneously with a surrounding knitted textile structure includes knitting an outline of the first knitted textile element.”

174. According to the '749 patent, “the types of stitches vary throughout textile structure 60 so that a pattern is formed with the outline of textile element 40.” Ex. 1001 at 7:40-43. This is illustrated in Figure 9 where the “outline of textile element 40 is depicted on a front portion of textile structure 60, and outline of another textile element 40 is depicted on a rear portion of textile structure 60.” *Id.*, 7:55-58.

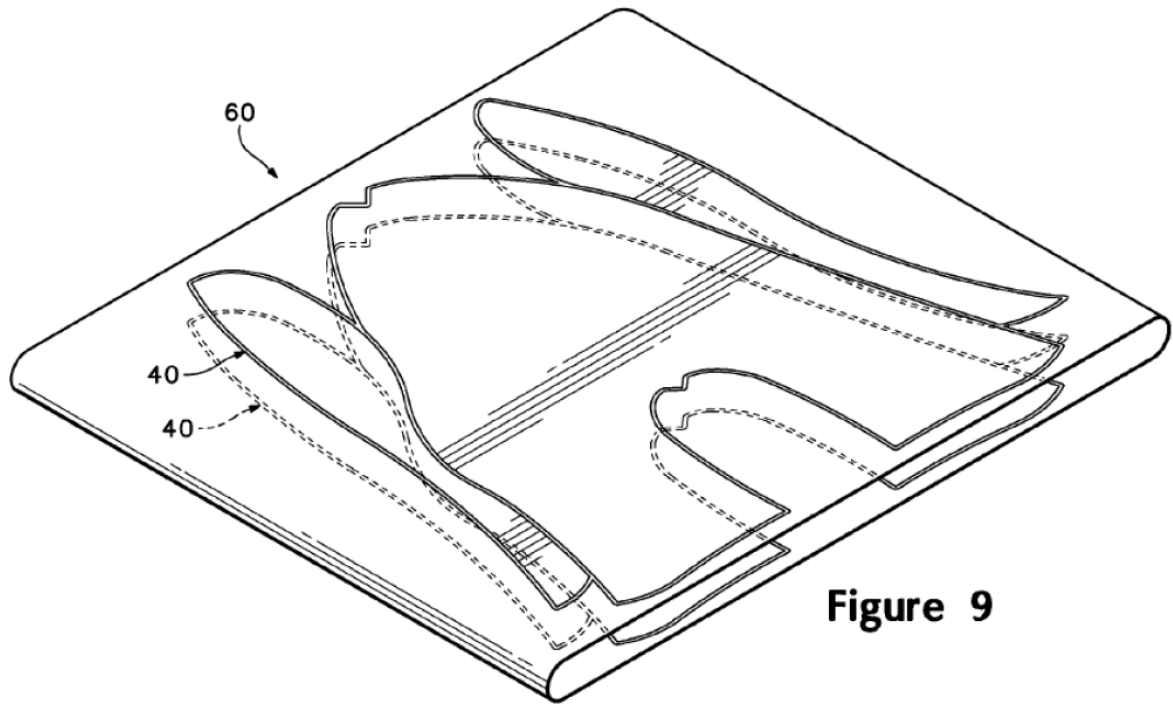


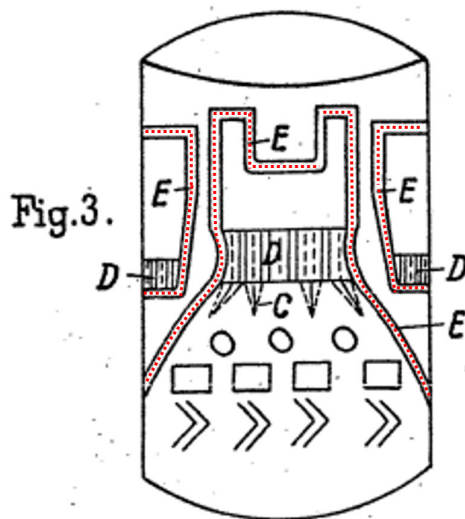
Figure 9

Id., Fig. 9.

175. According to the '749 patent, “the types of stitches vary throughout textile structure 60 so that a pattern is formed with the outline of textile element 40.” Ex. 1001 at 7:40-43. This is illustrated in Figure 9 where the “outline of textile element 40 is depicted on a front portion of textile structure 60, and outline of another textile element 40 is depicted on a rear portion of textile structure 60.” *Id.*, 7:55-58.

176. As explained above, Clark discloses all limitations of claims 1 and 13. A POSA making knitted shoe uppers in 2004 would have been motivated to make the process of cutting away waste material simple and efficient, and using an outline in the knitted pattern was a well-known way to do so. Indeed Clark itself

acknowledges the benefits of providing lines for cutting, i.e., parting strands, to delineate where one section of material ends and the next begins. EX1004, 4:37-46. A POSA would have been motivated to further improve this process and would have understood that there were several ways to do so by 2004. For example, Müller discloses a method of introducing purl stitches to a knitted fabric to “enable lines [] along which the fabric is to be cut.” EX1005, 1:63-67. Fig. 3, reproduced below, shows a garment section knitted into a piece of textile with an outline (labeled with “E”) incorporated into the knitted fabric to facilitate cutting. Figure 3 shows the outline has the shape and proportion of the knitted garment. Müller explains that the outline helps to prevent “a considerable waste of time ... since the fabric curls when unstretched and prevents a smooth cut conforming to the templet (template) being made.” *Id.*, 1:70-76. Müller further explains that there is an advantage to inserting the lines in knitted goods as they “do not lie flat, the tension is uneven and they curl up when cut.” *Id.*, 1:83-87. Accordingly, a POSA would have been motivated to incorporate an outline like that disclosed in Müller into the design of Clark to simplify the cutting process. This outline would be knitted simultaneously with the larger material and would have the shape and proportion of the upper to facilitate quick and accurate trimming.



Id., Fig. 3 (annotated).

177. A POSA would have reasonably expected success in creating an outline for Clark’s upper based on, e.g., the disclosures in Clark and Müller. Müller explains that these methods were easily “made at the present time on straight bar (flatbed) or circular knitting machines.” *Id.*, 1:9-10.

178. As a result, claims 3, 4, and 14 would have been invalid as obvious to a POSA in light of Clark and Müller.

XI. GROUND 3: Clark in View of a POSA’s General Knowledge Renders Obvious Claims 9, 10, 19, and 20.

179. Claims 9 and 19 depend from claim 1 and 13, respectively, and recite the limitation: “wherein simultaneously knitting a textile element with a surrounding textile structure includes utilizing a wide-tube circular knitting machine.” Claims 10 and 20 depend from claim 1 and 13, respectively, and recite the limitation

“wherein simultaneously knitting a textile element with a surrounding textile structure includes utilizing a jacquard double needle-bar raschel knitting machine.”

180. As explained above, Clark discloses all limitations of claims 1 and 13. As also disclosed above, Clark discloses that the fabric can be knitted using either a flatbed knitting machine or a circular knitting machine, and any circular knitting machine used to make the upper of Clark would necessarily be a wide-tube circular knitting machine. *See* EX1004, 2:14-17; Section (IX)(G). Even without Clark’s explicit disclosure of using a flatbed or circular knitting machine, however, a POSA would have been motivated to make Clark’s upper with either a wide-tube knitting machine or a jacquard double needle bar raschel knitting machine because as of the time the ’749 patent was filed, such machines were well-known and widely used in the manufacturing of knitted textiles.

181. In 2004, there were a select number of options available to produce knitted fabric efficiently in a manufacturing setting. For weft knitting, circular knitting machines producing tubular fabric, and circular and flat knitting machines producing purl structures, were commonplace by 2004. EX1010, 72-73; 83-84. A POSA would have understood that wide-tube circular or a jacquard double needle bar raschel knitting machines were two knitting machine options suited to produce the upper of Clark. Spencer, a widely referenced textbook on knitting techniques, includes descriptions of both wide-tube circular and raschel knitting machines

among the limited list of options available to a POSA. *See* EX1010. Indeed, by 2004, tricot and raschel knitting machines were the most widely used machines for warp knitting, and circular, flat bar, and straight bar machines were the most widely used for weft knitting. *Id.*, 108-12, 321. A POSA would have been able to use any of these machines to knit the uppers of Clark with success.

182. A POSA would have been specifically motivated to use a wide-tube circular knitting machine to make the textile element disclosed in Clark because it calls for “the knitting operation [to] proceed until a band is provided of sufficient width to supply bands for two or more uppers.” EX1004, 4:37-46. A POSA would have understood that this type of knitting operation necessitates that multiple knitted textile elements be produced in a continuous uninterrupted portion of the same fabric. EX1010, 105. A wide-tube circular knitting machine would accommodate making a larger piece of textile fabric with several horizontally spaced sections that would allow for more uppers to be knit simultaneously. Therefore, a POSA would have reasonably expected success in using a wide-tube circular knitting machine in light of the wide use of this machine in the industry.

183. A POSA would also have been specifically motivated to use a jacquard double needle bar raschel knitting machine as they are especially suited to knitting complex, special structures. *See* EX1010, 384; EX1017, 6, 9. Clark specifically sought to fill an “urgent demand in women’s shoes for a great variety of ornamental

and different color effects,” a task for which a jacquard double needle bar raschel knitting machine is well suited. EX1004, 1:12-13. Additionally, Clark asks for “the knitting operation [to] proceed until a band is provided of sufficient width to supply bands for two or more uppers set off from each other in the fabric by a parting strand.” *Id.*, 4:37-46. A POSA would have known that a jacquard double needle bar raschel machines are useful to simultaneously knit multiple uppers such as Clark’s. *See* EX1010, 388 (discussing how raschel double needle bed knitting machines can knit multiple articles side-by-side). Accordingly, a POSA would have reasonably expected success when knitting Clark’s upper with a jacquard double needle bar raschel knitting machine because of its wide use in the industry.

184. Indeed, the ’749 patent acknowledges that both wide-tube circular and raschel knitting machines were known and suitable for use with the claimed methods. EX1001, 6:65-7:8. There is specific mention of the Santoni SM8 TOP1, a commonly used knitting machine, as being usable to perform the claimed methods. *Id.*, 6:9-37. The ’749 patent does not indicate that any modification to the standard use of wide-tube circular machines or raschel knitting machines were needed to practice the claims of the ’749 patent.

185. As a result, claims 9, 10, 19 , and 20 would have been invalid as obvious in light of Clark and the general knowledge of a POSA.

XII. GROUND 4: Claims 5, 12, and 15 are Obvious in Light of Clark and Davis

A. Claims 5 and 15

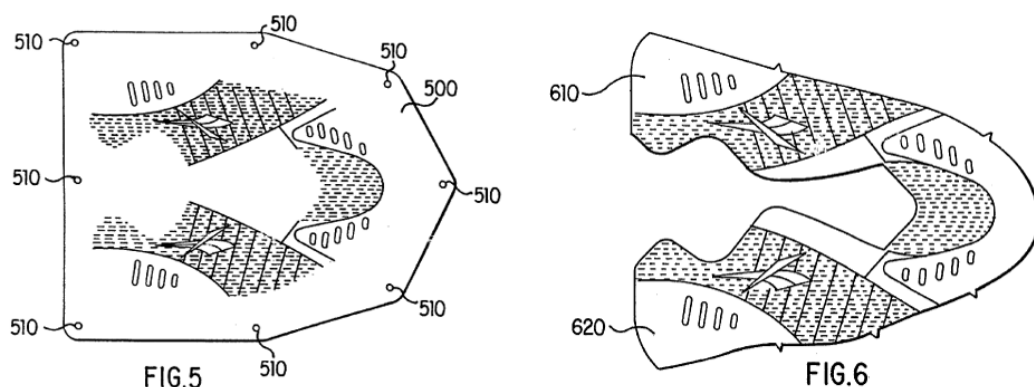
186. Claims 5 and 15 depend from claim 1 and 13, respectively, and add the limitation: “wherein the knitted textile element has a substantially planar configuration upon removal from the surrounding knitted textile structure.”

187. As explained above, Clark discloses removing the upper from the surrounding fabric and the upper retaining its substantially planar configuration. For the avoidance of doubt, however, a POSA would have been motivated to remove the upper from the surrounding material before the upper is given its three-dimensional shape.

188. By 2004, it was common practice to manufacture textiles with desired garment elements and cut out the elements from the larger sheet before assembling the garment. Specifically in footwear, it was known that uppers could be knit in larger sheets and then cut to shape before assembling the shoe upper. For example, Davis discloses a method of manufacturing an athletic shoe in which layers of material are constructed as larger sheets and embossed with a desired pattern of differing textures. EX1006, 1:65-2:3, 2:41-46. Davis explains that “[a]fter the molding process is complete [the] upper material [] is now ready to be die cut to the desired shape ... and incorporated into the actual upper construction.” *Id.*, 8:52-54. Davis teaches that layers can be made of knitted fabric and various layers can be

combined to form a single upper. *Id.*, 7:52-58. The upper is then lasted, where it can then be “cemented molded, or sewn to the desired sole to complete shoe construction.” *Id.* 2:39-41. Davis describes this process as the “typical shoe manufacturing process.” *Id.*, 1:16-17.

189. As Figs. 5 and 6 show, below, the sheet of knit material with the upper element is in a planar configuration before it is cut to shape. When the upper is cut from the surrounding textile structure into the desired shape, it remains in a planar configuration upon removal.



Id., Figs. 5 and 6.

A POSA would have understood that cutting the upper prior to forming it into the shape of a shoe would make the cutting process efficient and uniform. A POSA would have been motivated to cut the upper in Clark to shape prior to forming it on the last to avoid the trimming process after the material is formed to the last. If the upper of Clark was cut to shape and removed from the surrounding

knitted textile structure, it would remain in a planar configuration. A POSA would have reasonably expected success in removing Clark's upper in a planar configuration based on the disclosures of Davis and Davis's representation that it was the "typical shoe manufacturing process." *Id.*, 1:16-17. As a result, claims 5 and 15 would have been invalid as obvious to a POSA in light of Clark and Davis.

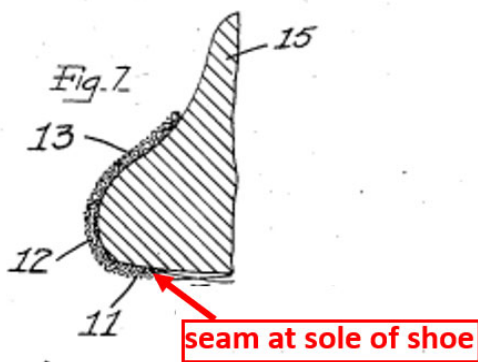
B. Claim 12

190. As explained above, Clark inherently discloses attaching the described upper to a sole in order to make a functional shoe. For the avoidance of doubt, however, a POSA would have also been motivated to attach the upper disclosed in Clark to a sole in light of, e.g., the disclosures in Davis, EX1006.

191. Claim 12 depends from claim 1 and recites: "wherein incorporating the knitted textile element into the article of footwear includes securing edges of the knitted textile element to form a seam that extends along a lower region of an upper and securing the upper to a sole structure."

192. As discussed above, Clark describes a method of manufacturing an article of footwear as recited in claim 1. A POSA would have considered Clark's disclosed invention to be a well-known process for manufacturing knitted textile article like an upper. *See* Section IX. This article of footwear can have a seam created when "[t]he welt section 11 is brought in under the last bottom and the inner

edges of this section [are] lasted together across the bottom of the last.” EX1004, 3:71-74; *see* Section IX(E).



EX1004, Fig. 7 (annotated).

193. A POSA would have been motivated to secure a sole to the upper described in Clark because doing so would make the upper in Clark a wearable, functional shoe. Clark explains that his goal was to “produce a satisfactory shoe upper” to fill the “urgent demand in women’s shoes for a great variety of ornamental and different color effect.” *Id.*, 1:5-13. Clark understood that his upper invention was “to be incorporated eventually in the shoe bottom.” *Id.*, 3:9-10. A POSA would have understood that attaching uppers to sole was and is a routine step in completing many types of shoes.

194. For example, Davis discloses a method of manufacturing an athletic shoe. EX1006, 5:38-39. Davis describes “[t]he typical shoe manufacturing process

encompasses “steps of cutting the upper material ... and cementing, molding, or sewing the bottom of the shoes to the upper (‘bottoming’).” *Id.*, 1:16-24. The “upper material [is] stitched together by means of a back strip and the upper material is lasted and bottomed to form the completed shoe.” *Id.*, 1:39-42. The bottoming consists of having the lasted upper “cemented, molded or sewn to [a] sole to complete the shoe construction.” *Id.*, 11:38-40. Therefore, a POSA would have understood that a sole may be added to the upper in Clark similar to the upper-sole combination in Davis to arrive at a functional shoe. A POSA would have reasonably expected success in creating a shoe after cementing, molding, or sewing Clark’s upper to a sole based on, e.g., the successful combination of these elements in Davis.

195. As a result, claim 12 would have been invalid as obvious to a POSA in light of Clark and Davis.

XIII. GROUND 5: Mills Anticipates Claims 1-8, 11, 13-18, and 21

A. Mills Discloses Claim 1

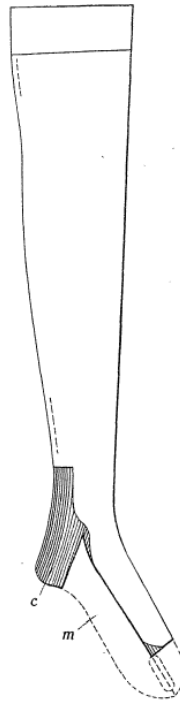
196. Mills describes “a practicable method whereby there may be produced a commercially satisfactory fashioned stocking (and by fashioned stocking is meant one that is shaped by varying the number of wales down the legs of such fabric).” EX1007, 1:19-25. Miller’s stocking is knitted as part of a larger fabric, cut out, and sewn to itself to create an article of footwear. A POSA would have understood that this cut-and-sew process for knit footwear like Mills was ubiquitous by 2004.

1. Preamble

197. The preamble of claim 1 recites “[a] method of manufacturing an article of footwear.”

198. Mills describes “a practicable method whereby there may be produced a commercially satisfactory fashioned stocking...” *Id.*, 1:19-25. Fig. 3, below, shows this stocking after being knit, cut, and sewn to itself. A POSA would have understood that a stocking is an article of footwear.

Fig. 3.



199. As a result, Mills discloses all elements of the preamble.

2. Limitation 1.a:

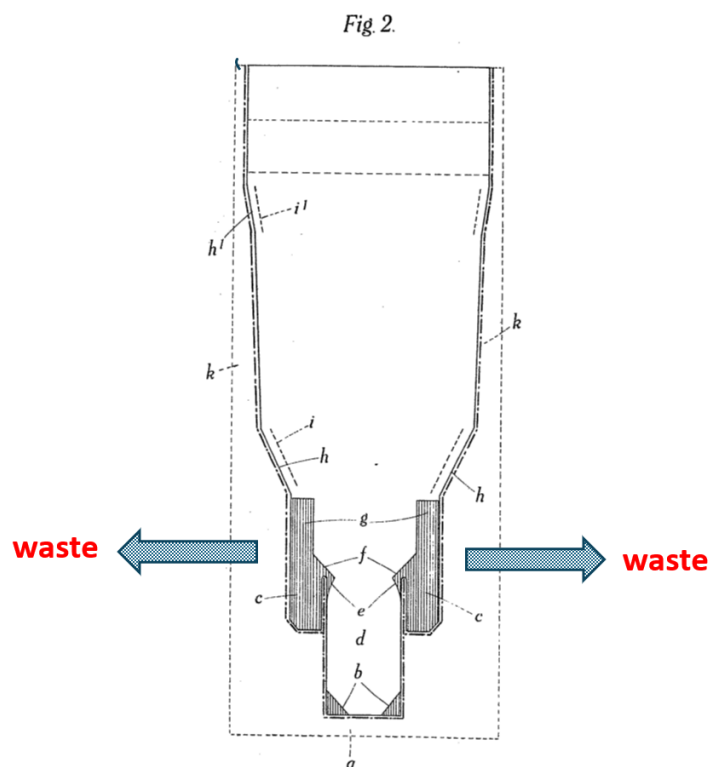
i. “simultaneously knitting a textile element with a surrounding textile structure”

200. As explained above, a POSA would understand that in the claims of the '749 patent, simultaneously indicates forming one or more textile elements and a surrounding textile structure as part of a single textile structure during a single knitting process.

201. The simultaneously knitting limitation is disclosed by Mills. Mills states that “it is preferred, if the welt is to be knitted on the same machine as the fabric for the remainder of the leg, to use a machine which produces fabric the circumferential diameter of which is approximate the same as or even greater than the maximum width of the stocking blank ...” *Id.*, 5:67-75. Mills goes on to explain that rather than varying the diameter of the circular knitting to shape the leg of the stocking, the “fashioned leg composed of lock-stitch fabric of the type specified...[is] cut from tubular fabric produced on a circular knitting machine ... and the optimum size of stitch and stitch locking loop is maintained with no appreciable variation throughout said leg.” *Id.*, 5:91-99.

202. Fig. 2, reproduced below, shows the stocking's knitted textile elements are knit within a surrounding textile structure. The surrounding textile structure is shown around the edges of the stocking and labeled with, for example, *a* and *k*.

Based on the basic operation of a circular knitting machine, the stocking blank and the surrounding waste material are knitted simultaneously.



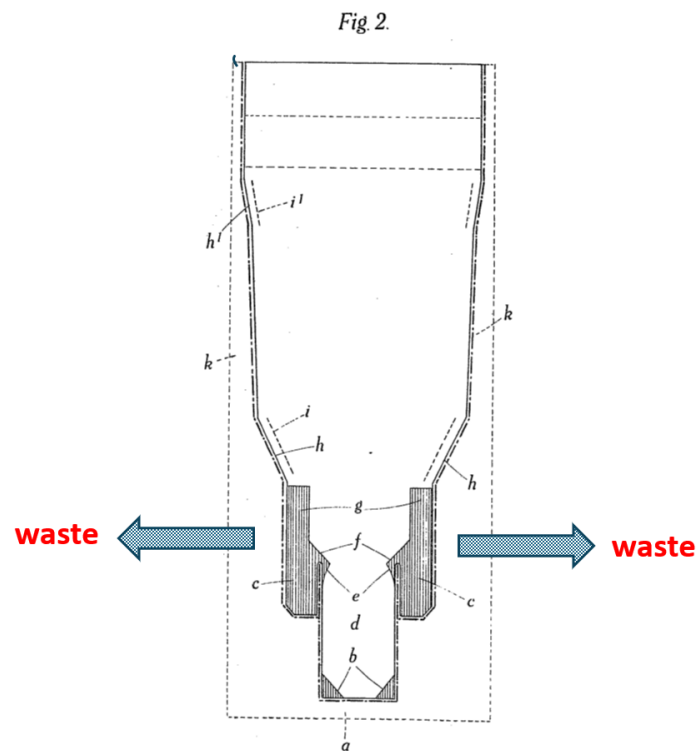
Id.; Fig. 2 (annotated).

203. As a result, Mills discloses all elements of this limitation.

- ii. **“the knitted textile element having at least one knitted texture that differs from a knitted texture in the surrounding knitted textile structure”**

204. As described above, the '749 patent provides that different textures in a single knitted structure may be formed from varying yarn type or stitch configuration. EX1001, 9:61-65, 3:33-37.

205. Mills discloses that “welt, heel, foot bottom and toe pouch may be spliced or knitted of a stouter thread¹¹, and this will be effected either on the circular or independent needle machine or upon the footer.” EX1007, 6:78-83. Mills explains a process where “[s]plicing thread is introduced to produce the shaped spliced portions b at the toe end of the instep and after the required amount splicing has been effected the splicing thread is taken out and knitting proceeded with without said thread to ...” *Id.*, 7:35-46. Fig. 2, below, shows the splicing thread as the darker shaded areas.



¹¹ A POSA would understand that a “stouter thread” is a heavier, coarser, or higher denier thread.

Id., Fig. 2 (annotated).

206. Introducing a stouter thread or splicing threads would result in a different texture than the base fabric represented by the unshaded regions above. *See* Fig. 2. Due to the stouter thread or additional spliced thread, the toe and heel portions are reinforced and have a thicker texture than the portions without the stouter or spliced threads.

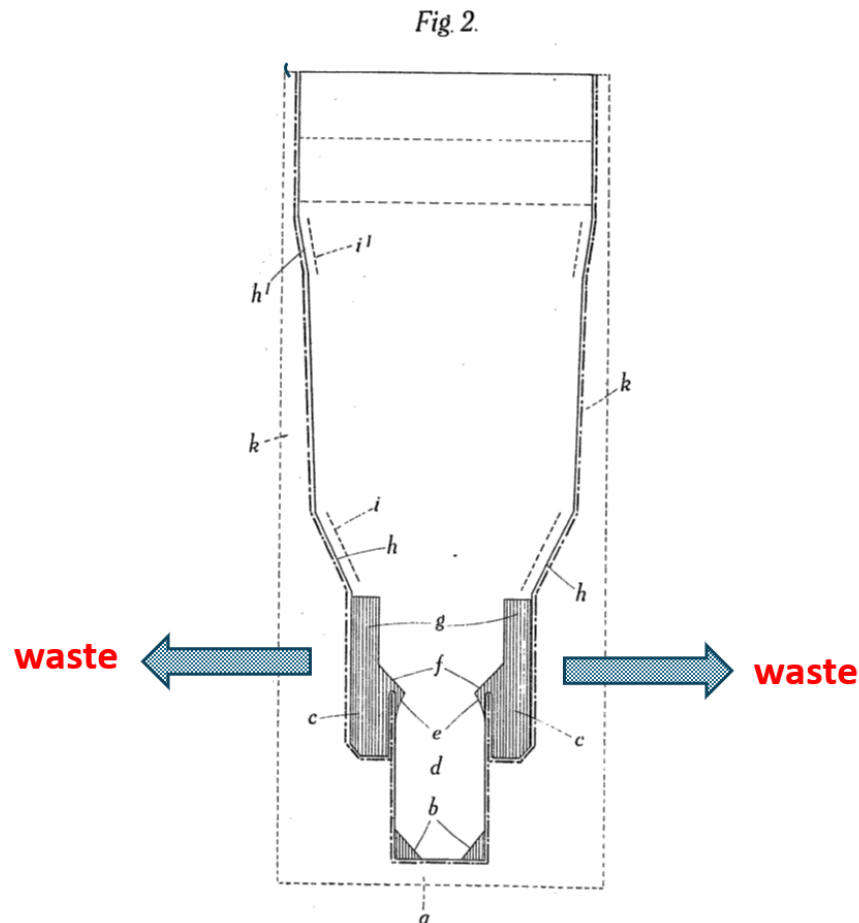
207. Mills further discloses that the surrounding textile structure would not include the reinforced texture present in the areas with stouter or spliced threads. Mills acknowledges that the material surrounding the stocking blank are cut away as waste. As such, Mills explains that this waste material should be created by allowing the yarn to “float over the requisite number of needles.” *Id.*, 6:44-61. These floated threads would not have the same texture as any portion of the knitted stocking blank.

208. Additionally, Mills shows that the reinforced foot portions of the stocking blank do not extend beyond the outline of the stocking blank, i.e., the reinforced texture is not present in the “waste” surrounding textile structure. *See* Figs. 1-4.

209. As a result, Mills discloses all elements of this limitation. Taken together, Mills discloses all elements of limitation 1.a.

3. **Limitation 1.b: “removing the knitted textile element from the surrounding knitted textile structure”**

210. Mills explains that “Figure 2 shows a shaped blank produced by cutting the knitted tube of Figure 1 along the dot and dash line, the cut away part being indicated by the marginal dotted line.” *Id.*, 6:106-110. Mills states that “in production of the blank, certain portions of the fabric are cut away and are waste.” *Id.*, 6:44-46.



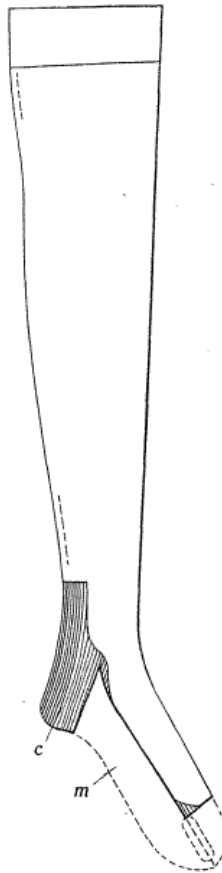
Id., Fig. 2 (annotated). A POSA would have understood that the stockings would be removed by “pressing off;” it would be severed from the surrounding material so that the stocking can be seamed. *See* EX1010, 289-90.

211. As a result, Mills discloses all elements of limitation 1.b.

4. Limitation 1.c: “incorporating the knitted textile element into the article of footwear”

212. Mills describes making a stocking in which “[d]esirably the seaming operation follows the cutting, and therefore the method includes the steps of cutting from the fabric a stocking blank of the requisite shape and then seaming together the edges of the shaped blank to produce the fashioned leg tube.” EX1007, 2:117-123. The fashioned “leg tube” is part of “a commercially satisfactory fashioned stocking.” *Id.*, 1:19-25. Fig. 3, below, shows this stocking after being knit, cut, and sewn to itself. A stocking is an article of footwear.

Fig. 3.



213. As a result Mills discloses all elements of limitation 1.c. Taken together, Mills discloses all elements of claim 1.

B. Mills Anticipates Claim 13

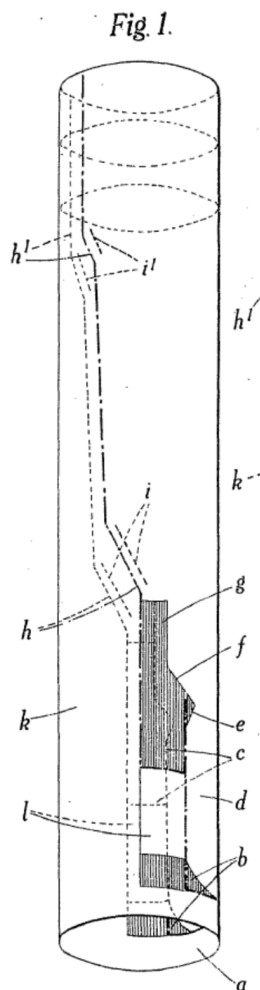
214. Claim 13 is similar to claim 1, and as such, Mills similarly discloses all elements of claim 13.

1. Preamble

215. The preamble of claim 13 is the same as the preamble of claim 1. It is disclosed by Mills for the reasons explained above in Section XI(A)(1).

2. **Limitation 13.a: “knitting a first textile element and a second textile element simultaneously with knitting a surrounding textile structure, the first knitted textile element located within a first portion of the knitted textile structure, the second knitted textile element located within a second portion of the knitted textile structure”**

216. As discussed above, Mills discloses simultaneously knitting a textile element with a surrounding textile structure. *See* Section XI(A)-(B). Mills also discloses knitting two textile elements in the same larger textile structure. Figure 1 in Mills shows the shape of the stocking blank that is cut from a knitted tube.



Id., Fig. 1. A POSA would have understood that the knitting process would not stop after a single stocking blank, but would continue knitting the tube to produce a large textile structure from which many stocking blanks would be cut. *See id.*, 6:63-67. When knitting a textile on a knitting machine, the textile element is pulled off the machine into a roll to ensure there is sufficient tension on the yarns to remove the loops from the knitting needles and allow the knitting process to continue. *See id.* The knitting machine will have take-down rollers that continuously pull the fabric off the machine to ensure a consistent take-down tension. *See id.*; EX1010, 268-69. Accordingly, the knitted tube of Mills would necessarily be manufactured as a chain of stocking blank sections in a row along the continuous tube. Therefore, Mills discloses a method where multiple textile elements are produced within different portions of the tubular fabric.

217. As a result, Mills discloses all elements of limitation 13.a.

3. Limitation 13.b: “varying at least one of the types of stitches or the types of yarns in the knitted textile structure to impart a texture to the first and second knitted textile elements different from a texture of the knitted textile structure extending between the first and second portions”

218. As discussed above, Mills discloses varying stitches or types of yarn to impart a texture to a textile element that is different from the texture of the surrounding textile element. *See* Section XI(A)-(B). A POSA would have further understood that the untextured waste material in Mills would extend between the

two textile elements. For example, Mills discloses that “[a] small parallel portion of fabric *a* (say approximately one inch) is first knitted of locked fabric without splicing thread. Splicing thread is now introduced to produce the shaped spliced portions *b* at the toe end of the instep and after the required amount splicing has been effected the splicing thread is taken out and knitting proceeded with without said thread to, a suitable point at which the heel is to be commenced.” EX1007, 2:45-36. A POSA would have understood that this approximately one inch of waste fabric without splicing thread would extend between each of the stocking blanks, and would eventually be cut away from the stocking blanks.

219. As a result, Mills discloses all elements of limitation 13.b.

4. Limitation 13.c: “removing the first and second knitted textile elements from the knitted textile structure”

220. As described above, Mills discloses that the stocking blanks are knitted continuously, cut from surrounding knit fabric, and then seamed at the toe to form the fully-fashioned stocking. *See* Section XI(A)(3). As also disclosed above, Mills discloses a method of making a textile that includes multiple stocking blanks. *See* Section XI(A)(2). A POSA would have understood that the stockings would be removed by “pressing off;” it would be severed from the surrounding material so that the stocking can be seamed. *See* EX1010, 266-67. This would inevitably occur for each stocking blank included in the larger tube of knitted fabric containing

several stocking blanks, and therefore, Mills discloses removing more than one textile elements from a knitted textile structure.

221. As a result, Mills discloses all elements of limitation 13.c.

5. Limitation 13.d: “incorporating at least one of the first and second knitted textile elements into the article of footwear”

222. As discussed above, Mills describes “producing a commercially satisfactory fashioned stocking.” EX1007, 1:19-25; *see* Section XI(A). A POSA would have understood that this process would be performed with each of the stocking blanks cut from the larger knitted tube.

223. As a result, Mills discloses all elements of limitation 13.d. Taken together, Mills discloses all elements of claim 13.

C. Mills Anticipates Claim 2

224. Claim 2 depends from claim 1 and recites: “wherein simultaneously knitting a textile element with a surrounding textile structure includes simultaneously knitting a plurality of textile elements.”

225. As explained above, Mills discloses all elements of claim 1. *See* Section XI(A). As further explained above, Mills also discloses a method of making stockings that would make a plurality of stocking blanks in a single textile structure. *See* Section XI(B). As a result, Mills discloses all elements of claim 2.

D. Mills Anticipates Claims 3, 4, and 14

226. Claim 3 depends from claim 1 and recites “wherein simultaneously knitting a textile element with a surrounding textile includes knitting an outline of the knitted textile element.” Claim 4 depends from claim 1 and adds the limitation: “wherein the outline has the shape and proportion of the knitted textile element.” Claim 14 depends from claim 13 and recites “wherein knitting a first textile knitted element simultaneously with a surrounding knitted textile structure includes knitting an outline of the first knitted textile element.”

227. According to the '749 patent, “the types of stitches vary throughout textile structure 60 so that a pattern is formed with the outline of textile element 40.” EX1001, 7:40-43. This is illustrated in Figure 9 where the “outline of textile element 40 is depicted on a front portion of textile structure 60, and outline of another textile element 40 is depicted on a rear portion of textile structure 60.” *Id.*, 7:55-58.

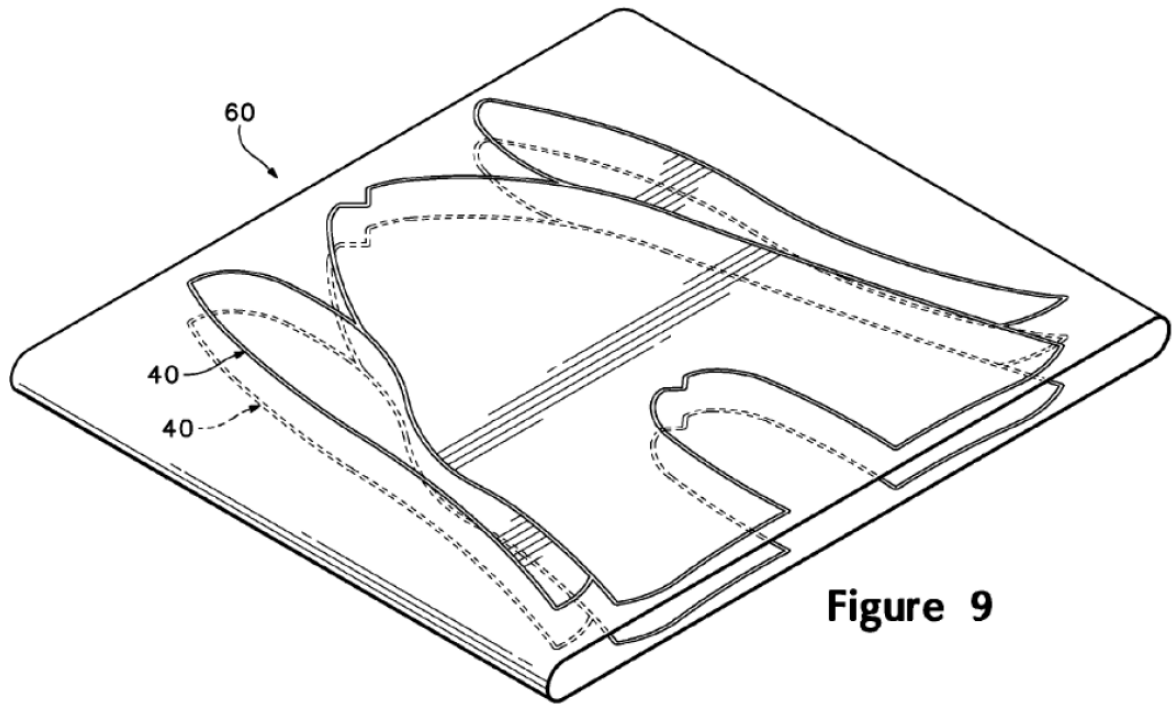
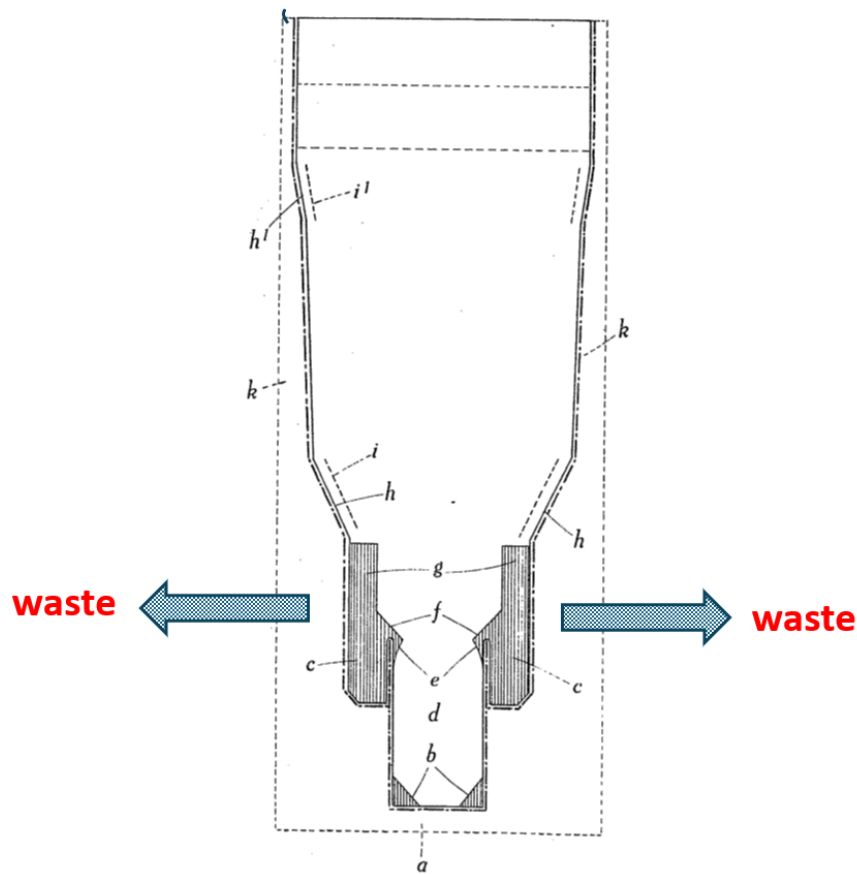


Figure 9

Id., Fig. 9.

228. As explained above, Mills discloses all limitations of claims 1 and 13. *See* Section XI(A)-(B). Mills describes that “the lines, along which the fabric is to be cut to produce the blank may be indicated by tuck stitches or other stitch variation.” EX1007, 6:30-43. Additionally, Mills explains that “Figure 2 shows a shaped blank produced by cutting the knitted tube of Figure 1 along the dot and dash line.” *Id.*, 6:106-08. As shown in Figure 2, the dot and dash outline of the stocking blank shows that the outline extends in the shape and proportion of the stocking blank.

Fig. 2.



Id., Fig. 2 (annotated).

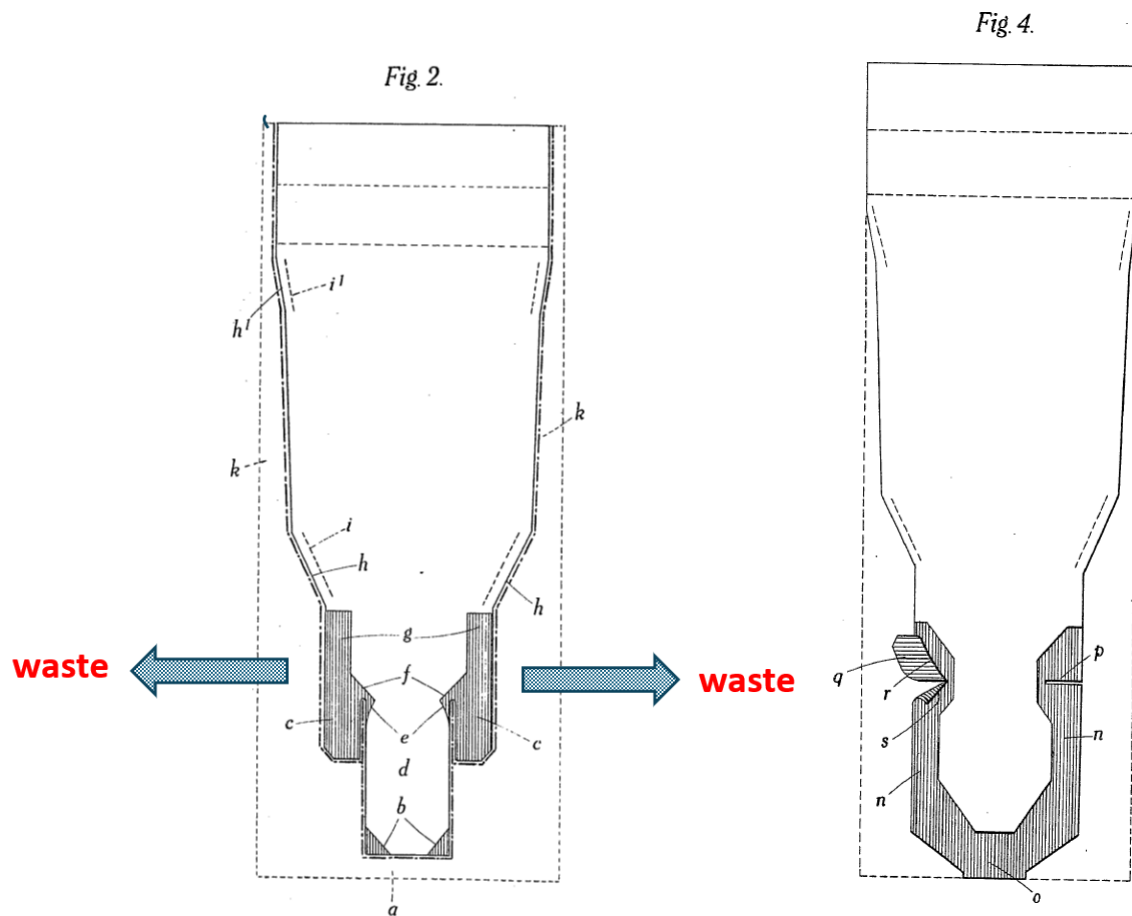
229. As a result, Mills discloses all elements of claims 3, 4, and 14.

E. Mills Anticipates Claims 5 and 15

230. Claims 5 and 15 depend from claim 1 and 13, respectively, and add the limitation: “wherein the knitted textile element has a substantially planar configuration upon removal from the surrounding knitted textile structure.”

231. As discussed above, Mills discloses all elements of claims 1 and 13. *See* Section XI(A)-(B). Mills additionally discloses that after the stocking blank is cut from the knitted tube, it no longer has a tubular shape and is substantially planar.

For example, Mills explains that the stocking material is knit on a circular knitting machine as a tube and is then cut from that tube. EX1003, 5:110-120 (“[T]he method includes the steps of cutting from the fabric a stocking blank of the requisite shape and subsequently seaming together the edges of the shaped blank to produce the fashioned leg tube.”). Figures 2 and 4 (below) show the complete stocking blank laid flat, as it would appear after being cut from the knitted tube.



Id., Fig. 2 (annotated); Fig. 4.

232. As a result, Mills discloses all elements of claims 5 and 15.

F. Mills Anticipates Claim 6, 7, and 16-18

233. Claim 6 and 16 depend from claim 1 and 13, respectively, and add the limitation: “wherein the knitted textile element includes longitudinal edges formed when the knitted textile element is removed from the surrounding knitted textile structure.” Claims 7 and 17 depend from claim 6 and 16, respectively, and add the limitation: “wherein the longitudinal edges are joined together to define at least a portion of a void for receiving a foot.” Claim 18 depends from claim 16 and recites: “wherein incorporating the first knitted textile element into the article of footwear includes securing the longitudinal edges of the first knitted textile element to form a seam that extends along a lower region of an upper.”

234. As explained above, a POSA would have understood that the longitudinal edges referred to in claims 6 and 16 would include edges of the textile element that are cut from the surrounding textile structure and extend lengthwise along some portion of the article of footwear. *See* Section XI(A)(E).

235. Mills discloses Claims 6, 7, and 16-18. As discussed above, Mills discloses all elements of claims 1 and 13. *See* Section XI(A)-(B). Mills further describes a method of making stockings in which “the seaming operation follows the cutting, and therefore the method includes the steps of cutting from the fabric a stocking blank of the requisite shape and then seaming together the edges of the shaped blank to produce the fashioned leg tube.” EX1007, 2:118-123. Therefore,

the stocking blank would have longitudinal edges formed when it is cut from the larger material. A POSA would have understood that the seaming of the stocking blank would be joining the longitudinal edges and would create a void for a person's leg and foot. Mills additionally discloses that the waste portion of the knitted tub is cut away and "[t]he cut edges of the blanks are now seamed up at the back of the leg, and a foot bottom and the toe added in the well-known manner." *Id.*, 7:75-78.

236. As a result, Mills discloses all elements of claims 6, 7, and 16-18.

G. Mills Anticipates Claim 8

237. Claim 8 depends from claim 1 and recites: "wherein the knitted textile element has a plurality of different knitted textures formed by varying at least one of the stitch type and the yarn type."

238. It is my understanding from counsel that, as a legal principle, when a claim phrases a group of structures as an alternative, the claim is anticipated if any member of the group of structures is disclosed in the prior art. Thus, I understand that a process which varies either the stitch type or the yarn type (or both) would disclose the limitations of claim 8.

239. As discussed above, Mills discloses all elements of claim 1. *See* Section XI(A). As also discussed above, Mills discloses creating texture by varying the thickness of the thread (e.g., using stouter thread, including splicing threads) and

also different stitch type through use of tuck stitches in mock-fashioning areas (element “I”). *See* Section XI(A)(1)(ii).

240. As a result, Mills discloses all elements of claim 8.

H. Mills Anticipates Claims 11 and 21

241. Claims 11 and 21 depend from claims 1 and 13, respectively, and recite: “wherein simultaneously knitting a textile element with a surrounding textile structure includes forming the knitted textile element to include a first area and a second area with a unitary construction, the first area being formed of a first stitch configuration, and the second area being formed of a second stitch configuration that is different from the first stitch configuration to impart varying textures to a surface of the knitted textile element.”

242. Mills discloses claims 11 and 21. As discussed above, Mills discloses all elements of claims 1 and 13. *See* Section XI(A)-(B). As discussed above, Mills discloses making a stocking blank that includes at least two different textures using different stitch or yarn configurations. *See* Section XI(A)(ii). A POSA would have further understood Mills’ stocking blank to be a textile element with a unitary construction because it the fabric is knitted as a single piece of material. Mills explains that as the material is knit on the circular knitting machine, each course has both stitches that are part of the stocking blank and stitches that are part of the waste material. EX1007, 6:44-61.

243. As a result, Mills discloses all elements of claims 11 and 21.

**XIV. GROUND 6: Mills in View of the Knowledge of a POSA Renders
Obvious Claims 9, 10, 19, and 20**

244. Claims 9 and 19 depend from claim 1 and 13, respectively, and recite the limitation: “wherein simultaneously knitting a textile element with a surrounding textile structure includes utilizing a wide-tube circular knitting machine.” Claims 10 and 20 depend from claim and 13, respectively, and recite the limitation “wherein simultaneously knitting a textile element with a surrounding textile structure includes utilizing a jacquard double needle-bar raschel knitting machine.”

245. As explained above, Mills discloses all limitations of claims 1 and 13. *See* Section XI(A)-(B). Mills also states that the invention can be produced by “selecting a circular machine of substantial diameter for the production of the ladder-resistant fabric.” *Id.*, 5:34-43. A POSA would have been motivated to make Clark’s upper with either a wide-tube knitting machine or a jacquard double needle bar raschel knitting machine because as of the time the ’749 patent was filed, such machines were well-known and widely-used in the manufacturing of knitted textiles.

246. In 2004, there were a select number of options available to produce knitted fabric efficiently in a manufacturing setting. For weft knitting, circular knitting machines producing tubular fabric, and circular and flat knitting machines producing a garment-length sequence were commonplace by 2004. EX1010, 105. A POSA would have understood that wide-tube circular or a jacquard double needle

bar raschel knitting machines were two knitting machine options ideally suited to produce the stocking of Mills. Spencer, a widely referenced textbook on knitting techniques, includes descriptions of both wide-tube circular and raschel knitting machines among the limited list of options available to a POSA. *See id.* Indeed, by 2004, tricot and raschel knitting machines were the most widely used machines for warp knitting, and circular, flat bar, and straight bar machines were the most widely used for weft knitting. *Id.*, 108-12, 321. A POSA would have been able to use any of these machines to knit the uppers of Clark with success.

247. A POSA would have been specifically motivated to use a wide-tube circular knitting machine to make the textile element disclosed in Mills because a POSA would have understood that many stocking blanks could be knitted in and cut from a single tube of material. Due to Mills' "cut and seam" method, a POSA would have recognized that the knitting machine could be programmed to knit the material to include two or more stockings side-by-side, which would allow for more stockings to be made simultaneously. A POSA would have understood that wide-tube circular knitting machine would accommodate making a larger piece of textile that would allow for more uppers to be knit simultaneously. Therefore, a POSA would have reasonably expected success in using a wide-tube circular knitting machine in light of the wide use of this machine in the industry.

248. A POSA would have also been specifically motivated to use a raschel knitting machine because a POSA would have understood that stockings can be made on a warp knitting machine and a jacquard double needle-bar raschel knitting machine is a regularly used type of these machines. *See* EX1008, 6:54-56. A POSA would have known that a jacquard double needle bar raschel machines are useful in knitting stockings such as those in Mills. *See* EX1010, 388 (discussing how raschel double needle bed knitting machines can knit multiple articles side-by-side).

249. For example, Perrier discloses a method of manufacturing a seamless stocking. EX1008, 5:38-39. Perrier describes that “[i]n a preferred embodiment of the invention, the tubular fabric A is knitted on a [raschel]¹² knitting machine having self-acting needles.” *Id.*, 6:54-56. A POSA would understand that “self-acting needles” indicates the knitting is done on a “Jacquard” machine. A POSA looking to make the stocking described in Mills would have been motivated to use a jacquard raschel knitting machine, as referenced in Perrier. Accordingly, a POSA would have reasonably expected success in knitting the stocking of Mills with a jacquard double needle bar raschel knitting machine. Indeed, the ’749 patent acknowledges that both

¹² Perrier refers to a “Rachel knitting machine” in its description. A POSA would have understood that this was an error, and that Perrier was referring to a raschel knitting machine.

wide-tube circular and raschel knitting machines were known and suitable for use with the claimed methods. EX1001, 6:65-7:8. There is specific mention of the Santoni SM8 TOP1, a commonly used knitting machine, as being usable to perform the claimed methods. *Id.*, 6:9-37. The '749 patent does not indicate that any modification to the standard use of wide-tube circular machines or raschel -knitting machines were needed to practice the claims of the '749 patent.

250. As a result, claims 9, 10, 19 , and 20 would have been invalid as obvious in light of Mills and the general knowledge of a POSA.

XV. GROUND 7: Claim 12 is Obvious in Light of Mills in Combination with Cadenas

251. Claim 12 depends from claim 1 and recites: “wherein incorporating the knitted textile element into the article of footwear includes securing edges of the knitted textile element to form a seam that extends along a lower region of an upper and securing the upper to a sole structure.”

252. As explained above, Mills describes a method of manufacturing an article of footwear as recited in claim 1. A POSA would have considered Mill’s disclosed invention to be a well-known process for manufacturing knitted textile article like an upper. *See* Section XI.

253. As explained above, Mills explains that “the eventual seam extends centrally along the foot bottom.” *See* EX1007, 3:41-42. This foot seam is created by connecting the longitudinal edges, as explained further in Section XI(E).

255. Cadenas discloses a method of manufacturing an article of footwear that is a combined shoe and stocking. EX1009, 1:12. Cadenas describes, as depicted in Fig. 1 (annotated) below, that the shoe (with a sole) is permanently attached to the stocking. *Id.*, 1:28-34; 2:30-32.



114

sole...made of cork, linoleum or other suitable waterproof, nonabsorbing substance” covered by “layers hav[ing] protecting edges”). A POSA would have reasonably expected success in knitting, cutting, and sewing Mill’s stocking and then securing it to a sole in light of the disclosure of Cardenas. As a result, claim 12 would have been invalid as obvious to a POSA in light of Mills and Cardenas.

XVI. NO SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

257. I am not aware of any secondary considerations of non-obviousness that would support non-obviousness of the ’749 patent.

258. Given that the articles of footwear claimed in the ’749 patent are not new and nonobvious, I am unaware of any long-felt need in the industry, unexpected results, skepticism of the invention, or teaching away from the invention. I am also unaware of any praise for the alleged inventions or copying of the alleged inventions by other companies. If Patent Owner identifies any alleged evidence of secondary considerations in the future, I reserve the right to respond to that information.

XVII. CONCLUSION

259. For the foregoing reasons, it is my opinion that claims 1-21 of the ’749 patent are anticipated or would have been obvious to a POSA at the relevant time in view of the prior art referenced above.

260. In signing this Declaration, I recognize that the Declaration will be filed as evidence in a case before the Patent Trial and Appeal Board of the United States

Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

261. I declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: 4/29/2024

By: 

MATERIALS CONSIDERED

Books and Manuals:

David J. Spencer, *Knitting Technology: a Comprehensive Handbook and Practical Guide* (3d ed. 2001)

H. Stoll GmbH & Co, *Stoll Training: Manual Flat Knitting Machine* (2013)

Hazel Pope, *A Machine Knitter's Handbook* (1988)

Harry Wignall, *Knitting* (1964)

George E. Linton, *The Modern Textile Dictionary* (1st ed. 1954)

Hollen et al., *Textiles* (6th ed. 1988)

Proceedings:

adidas AG v. Nike, Inc., IPR2016-00922

lululemon usa v. Nike, Inc., IPR2024-00460

Patents and Prosecution History:

U.S. Patent No. 2,440,393 to Clark, et al.

G.B. Patent No. 228,917 to Müller

U.S. Patent No. 6,299,962 to Davis, et al.

G.B. Patent No. 500,230 to Mills

U.S. Patent No. 3,429,147 to Perrier, et al.

U.S. Patent No. 1,093,032 to Cadenas

Prosecution History for U.S. Patent No. 8,266,749 to Dua et al.