

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NEW BALANCE ATHLETICS, INC.,
Petitioner,

v.

NIKE, INC.,
Patent Owner.

Case No. IPR2025-00020

Patent 8,898,932

DECLARATION OF ANN WILLIAMS

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EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 8,898,932 to Woodman, et al.
1002	Excerpts of Prosecution History for U.S. Patent No. 8,898,932
1003	Declaration of Ann Williams
1004	Curriculum Vitae of Ann Williams
1005	Declaration of Jaap Schut, Ph.D.
1006	Curriculum Vitae of Jaap Schut, Ph.D.
1007	U.S. Patent Application Publication 2010/0313447 to Becker, et al.
1008	U.S. Patent No. 170,332 to Bibbins
1009	U.S. Patent No. 2,213,545 to Chace, et al.
1010	U.S. Patent Application Publication No. 2011/0088285A1 to Dojan, et al.
1011	U.S. Patent No. 6,862,820 to Farys, et al.
1012	U.S. Patent No. 3,319,360 to Nadler
1013	World Intellectual Property Organization Publication WO 2004/012544 to Wildeman
1014	Not Used
1015	Not Used
1016	Clarks Limited, MANUAL OF SHOEMAKING (5th ed. 1980)
1017	Youn Hee Jeon, et al., <i>The Mechanical Properties and Abrasion Behavior of Warp Knitted Fabrics for Footwear</i> , 4 FIBERS AND POLYMERS 4, 151-155 (Dec. 5, 2003).
1018	Nirupama Pundir, FASHION TECHNOLOGY: TODAY AND TOMORROW (2008)
1019	Wiah Wardiningsih, Study of Comfort Properties of Natural and Synthetic Knitted Fabrics in Different Blend Ratios for Winter Active Sportswear (2009) (Masters thesis, RMIT University, Melbourne)
1020	C. Prakash et al., <i>Establishing the effect of loop length on dimensional stability of single jersey knitted fabric made from</i>

EXHIBIT LIST

Exhibit No.	Description
	<i>cotton/lycra core spun yarn</i> , 3 INDIAN JOURNAL OF SCIENCE AND TECHNOLOGY 3, 287-289 (March 2010)
1021	Elena Onofrei, <i>The Properties of Knitted Fabrics for Bio-Functional Textiles</i> , BUL. INST. POLIT. IAȘI, t. LVI (LX) f.2, (2010)
1022	Weihua Shi, <i>Mechanisms of Ultrasonic Joining of Textile Materials</i> , 12 INT’L JOURNAL CLOTHING SCIENCE AND TECH. 5, 331-350 (2000)
1023	Stephen Michielsen, <i>Review of Thermally Point-Bonded Nonwovens Materials, Processes, and Properties</i> , 99 JOURNAL OF APPLIED POLYMER SCIENCE, 2489-2496 (2006)
1024	Raghavendra R. Hedge, <i>Thermal Bonding of Polypropylene Films and Fibers</i> , 110 JOURNAL OF APPLIED POLYMER SCIENCE, 3047-3058 (2008)
1025	Subhas Ghosh, et al., <i>Ultrasonic Sealing of Polyester and Spectra Fabrics Using Thermoplastics</i> , 113 JOURNAL OF APPLIED POLYMER SCIENCE, 1082-1089 (2009)
1026	Charles A. Harper, et al., PLASTICS MATERIALS AND PROCESSES, A CONCISE ENCYCLOPEDIA (2003)
1027	In the Matter of Certain Knitted Footwear, Investigation No. 337-TA-1289, Updated Joint Claim Construction Chart (ITC, May 24, 2022)
1028	Excerpts of M.L. Berins, SPI PLASTICS ENGINEERING HANDBOOK OF THE SOCIETY OF THE PLASTICS INDUSTRY, INC. (1991)
1029	American & Efird, <i>Footwear Glossary Shoe Styles</i> , available at https://www.amefird.com/wp-content/uploads/2010/01/1Footwear-Glossary-Shoe-Styles-06-13-08.pdf (2008)
1030	U.S. Courts, Statistics and Reports, Table C-5, U.S. District Courts–Civil Federal Judicial Caseload Statistics, March 31, 2023
1031	U.S. Patent No. 2,147,197 to Glidden

EXHIBIT LIST

Exhibit No.	Description
1032	U.S. Patent Application Publication 2005/0262739 to McDonald et al.

I, Ann Williams, declare as follows:

1. I have been retained on behalf of New Balance Athletics, Inc. (“Petitioner”) in connection with its petition for *inter partes* review (“IPR”) of U.S. Patent No. 8,898,932 “Article of footwear incorporating a knitted component” (“the ’932 patent”). The patent discloses knitted uppers with a skin layer secured to the knitted component. EX1001. I understand that Petitioner is challenging claims 11-15 of the ’932 patent.

2. Petitioner has asked me to consider the patentability of the claims of the ’932 patent in light of the prior art and provide a tutorial on the technology disclosed in the ’932 patent. All of the materials that I considered and relied upon are discussed explicitly in this declaration. These materials are listed on p. 88 herein.

I. BACKGROUND AND QUALIFICATIONS

3. I am an expert in footwear design and development, and business strategy in the footwear industry. In 1993, I was awarded a Bachelor of Arts Honors degree in Footwear Design, from De Montfort University. My coursework emphasized the crucial relationship between design, manufacturing, and the needs of the footwear industry and consumers. There I developed technical expertise in all aspects of footwear design including construction, materials, development, and commercialization. I directly interacted with leading industry professionals and major brands to gain practical experience and valuable insights into new products

and technologies. During my time at university, and in my subsequent roles within the footwear industry, I was encouraged to look to other industries, such as apparel, architecture, furniture, or toys, for inspiration of ways to innovate our footwear designs and the materials used in them. This is a practice I still use to this day.

4. From June 1993 to March 1997, I was a footwear designer at Clarks International where I lead design of the brand's "First Shoes" line, a comprehensive collection of footwear for children aged 6 months to 2 years representing the consumer's vital first experience with the Clark's brand. The extensive line consisted of main range and seasonal products, designed for both the domestic UK and continental European markets. My position at Clark's offered the unique opportunity to design and learn from the experts in the factories located onsite. Having a factory sample room in close proximity allowed us to try many different materials and techniques. The lines of shoes I worked on included leather, textile, knitted, woven, and polyurethane materials. My work extended to the Back to School line, where I designed the number one selling girls shoe in the UK during my tenure.

5. From March 1997 to April 1999, I was a footwear designer at Reebok in Massachusetts, having relocated to the United States after being recruited by senior design management. I designed unique and original footwear, offering features, benefits, and aesthetics. In addition, I redesigned and reengineered adult "hero"

footwear to meet the unique needs and demands of children, while also ensuring feasible and cost-effective production. I collaborated closely and simultaneously with both internal and third-party agent development and licensing teams and related overseas production facilities, balancing different processes, timelines, and duty rulings. I communicated global corporate design direction, standards, palettes, and deadlines to external agents, and ensured adherence to same. I collaborated closely with the advanced concepts team, the materials design and development team, and the sourcing team.

6. From 1999 to 2003, I worked for the Stride Rite Corporation, where I quickly was promoted from Senior Designer to become the Director of Product Design. I actively designed product and managed staff of 8-10 designers and product managers through the entire footwear design and development process. This included everything from initial strategy and concepts to final product. I collaborated closely with senior management, as well as product licensing, marketing, domestic and overseas development, and merchandising teams.

7. In 2003, I co-founded Schwilliamz Creative Consultants, a leading footwear industry consultancy specializing in all aspects of footwear design, development, and business strategy. Since 2003, I have served as the creative director for Schwilliamz. My work has involved consulting for many brands including: Sperry, Converse, Stride-Rite, Ecco, Lands' End, Clarks International,

Easy Spirit, Keds, Nine West Group, White Mountain, Reebok, Fisher-Price, BBC International, Muck, Sears Holding Corporation, Start-Rite U.K., Dockers, Marc Fisher, Kuru, Aetrex Worldwide, Viakix, ICB, TIEM, and William Lamb.

8. I have held vital roles within the footwear industry, ranging from designer to Director of Product and Design for a leading global brand. As a consultant my work has ranged from initial research and design concepts to comprehensive, multi-year contracts serving as a full-service creative department, handling all stages of design, development, and commercialization. I have also served as a subject matter expert, where I provide expert testimony and litigation support on footwear related matters. I have 30 years of experience in both corporate and consulting sectors. My curriculum vitae is attached as Exhibit 1004.

II. LEGAL PRINCIPLES

9. Because I am not an attorney or patent agent, counsel for Petitioner has provided me an understanding of the relevant parts of U.S. patent law that govern the issues of patent validity.

A. Prior Art

10. I have been informed that the prior art includes patents and printed publications in the relevant field(s) that predate the earliest filing date of the '932 patent. I have been informed by counsel that the '932 patent lists its earliest filing date as November 15, 2012.

11. All of the prior art discussed in this declaration was published prior to November 2012, so I need not consider whether the '932 patent is actually entitled to this filing date.

B. Person of Ordinary Skill in the Art

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

C. Claim Construction

13. I have been informed by counsel 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, (in other words, as of the effective filing date of the patent application).

14. I have been informed that the person of ordinary skill in the art is deemed to read each claim term in the context of the particular claim in which it appears, as well as the context of the entire patent, including the written specification and the accompanying drawings.

15. I have been informed by counsel that the patent specification is the single best guide to the meaning of a claim term and is thus highly relevant to the interpretation of claim terms. 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.

16. I have been informed by counsel that the prosecution history can further explain 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. I understand this would include my expert testimony.

17. I have been informed by counsel that some claims are “independent” and are complete by themselves; while other claims are “dependent” and refer to those independent claims. The dependent claims include all of the limitations of the claims on which they depend.

D. Obviousness

18. I have been informed by counsel that obviousness is a determination of law based on various underlying determinations of fact. I understand that 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.

19. I further understand that objective indicia may include (1) commercial success of the patented invention, (2) industry recognition, (3) whether the invention fills a long-felt but unsolved need in the field, (4) the failure of others to arrive at the invention, (5) industry acquiescence and recognition, (6) initial skepticism of others in the field, (7) whether the inventors proceeded in a direction contrary to the accepted wisdom of those of ordinary skill in the art, and (8) the taking of licenses under the patent by others, among other factors.

20. I understand that in order to ascertain the scope and content of the prior art, one must first examine the field of the inventor's endeavor and the particular problem for which the invention was made. I further understand that 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.

21. I have been informed by counsel 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.

22. I have been informed by counsel 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

23. I understand that for purposes of assessing the obviousness of the '932 Patent, the level of skill possessed by the hypothetical POSA is informed by several factors. These factors include (1) the type of problems encountered in the relevant art, (2) the prior art solutions to those problems, (3) the rapidity with which innovations are made in the relevant art, (4) the sophistication of the relevant technology, and (5) the educational level of active workers in the field.

24. The relevant field of the '932 patent relates to articles of footwear having a knitted upper and a sole structure secured to the knitted upper, wherein the knitted upper may have a thermally bonded skin layer. EX1001, 11:50-65.

25. In my opinion, a POSA at the relevant time period, which I understand to be around the time of the earliest priority application, November 15, 2012, would have had a bachelor's degree in design, footwear design, textile design and technology, 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. The POSA would have had access to a team which would have included at least one member with expertise in various aspects of garment and/or footwear

manufacturing. This would have included individuals with a bachelor's degree in chemical engineering, textile engineering, mechanical engineering, or a similar degree and at least 3 years of experience working with different methods of applications for securing material to knitted textiles, including 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 '932 patent. All of my opinions set forth herein are provided from the perspective of a person having the above education and training.

26. As of November 2012, I had an undergraduate degree in footwear design from De Montfort University in Leicester, England as well about twenty years of experience in the footwear industry. As of 2012, my experience ranged from designer to Director of Product and Design for a global footwear brand to owner of a footwear design consultancy. Thus, in November 2012, I was at least a POSA.

IV. TECHNOLOGY BACKGROUND

27. The technology overview provided below gives background on some of the concepts that a POSA would have been familiar with and are relevant to the

discussion herein. The below discussion does not encompass all concepts known to a POSA as of November 2012.

A. Brief Overview of Footwear Design and Manufacturing

28. Footwear “styles are obtained” by “endless variations on comparatively few basic themes.” EX1016, 1. A shoe “can be grouped broadly into those [categories] which make up the upper and those which constitute the sole and heel or bottom.” *Id.* “Conventional articles of athletic footwear include two primary elements, an upper and a sole structure. The upper provides a covering for the foot that securely receives and positions the foot with respect to the sole structure.” EX1032, [0005]. It was well-known that “[t]he upper forms a void on the interior of the footwear for receiving the foot. The void has the general shape of the foot, and access to the void is provided by an ankle opening.” *Id.* [0006].

29. The upper normally consists of three basic parts: the vamp, covering the front of the shoe, and two portions called the quarters, which cover the back of the foot. EX1016, 6-10. Where the upper meets the sole or insole is called the feather edge. *Id.*, 2. The footwear development and making process can be broken down to a few fundamental steps.

1. Last making.

30. To ensure the correct fit and shape of a shoe a last is made. *Id.*, 56. “Lasts are fundamental to shoe manufacture since they dictate the exact shape, size,

and fit of the shoes made on them. Last design depends on fashion trends as well as the anatomy of the foot.” *Id.* The last is used as a form to cut the pattern and make the shoe. *See id.* To make a last, a bespoke shoe maker would take a series of certain measurements, including girth measurements of the ankle. *Id.*, 44-45.

2. Product Development.

31. Product development includes designing of and creating the pattern for the upper, which typically includes three basic parts: “[t]he vamp which covers the toes and forepart or the front of the shoe” and two “quarters which enclose the back of the foot.” *Id.*, 2. Depending on the end use of the footwear other pattern pieces might be added, for example athletic shoes and boots may also have pattern pieces that go up the leg covering the ankle. EX1029, 1 (“Boot: Any footwear that rises to the ankle or higher, can be causal or dressy, practical or fashionable.”).

3. Cutting.

32. After a shoe is designed various parts of the upper pattern are cut depending on the material and pattern. *See* EX1016, 99-112.

4. Closing.

33. The shoe then undergoes “closing,” “the title given to the preparation, fitting together and finishing off of the cut components to produce an upper ready for lasting.” *Id.*, 113. Trimmings, decorative details and logos are added at this stage. *Id.*, 122, 127. These can be embossed, stitched, punched, or heat sealed. *Id.*

In the closing process the pattern pieces of the upper are fitted together. *Id.*, 134. This can “involve stitching of one sort or another” or other process such as a bonded or welded seam to connect the pieces together. *Id.* “A bonded seam is constructed by applying an adhesive to the components in either a liquid or film form and sticking them together with the aid of conventional heat and pressure.” *Id.*, 142. “A welded seam is formed when two or more components are” “fused together using . . . heat.” *Id.*

5. Making.

34. Finally, a shoe undergoes “making” where “all the component parts of the upper and bottom are brought together to construct the shoe.” *Id.*, 203. The making process can be divided into three steps: assembly, lasting, and attaching. *Id.*, 203-205. Assembly is “where all of the upper and component parts of the shoe are brought together.” *Id.*, 203. Lasting encompasses “the processes involved in stretching the upper material over the last and securing it to” an insole. *Id.*, 204. Finally, the sole is attached. *Id.* at 205.

B. Techniques Used to Assemble Separate Layers of Uppers

35. As of November 2012, it was well-known that textile materials could take many forms “including woven and knitted constructions as well as nonwoven constructions” (e.g., stitch bonded, felt constructions, spun bonded constructions and

the like) depending on the function to be performed by the article of footwear and the styling aesthetics trying to be achieved. EX1013, 1:21-25.

36. Knitted fabrics, in particular, have been widely used in the footwear industry. A knitted fabric is a structure that is “formed by the intermeshing of loop yarn” and include both weft and warp knit. *Id.*; EX1019, 37. Knitted fabrics have numerous advantages, including excellent “moisture permeability, air permeability, attractive [] appearance and appropriateness for foot.” EX1017, 151. Knitted fabric also “possesses high stretch and recovery, providing a greater freedom of movement, shape retention, and tailored fit.” EX1019, 40. It was well known in the footwear industry that shoes made of knitted fabrics—such as warped knits—can “maintain [the] comfort condition of [the] foot while wearer moves dynamically.” EX1017, 151. Knitted fabrics may be made from synthetic materials such as polyester, acrylic, nylon or polypropylene (which have good moisture transfer properties) or natural materials such as cotton, wool, viscose (which have good moisture absorption properties). EX1019 at 39; EX1018 at 80-81 (Knitted fabrics used in apparel and footwear can be either “natural, man made, or blended.”).

37. The development and design of footwear often requires affixing additional materials—“such as foam, leather, or another textile”—to the upper component of a shoe; “thereby giving rise to a multi-layer composite construction.” EX1013, 2:4-6; *see also* EX1032, [0007] (“The upper of an article of athletic

footwear, for example, may be formed from multiple material layers that include an exterior layer, a middle layer, and an interior.”). It was well-known that affixing textile materials to a second surface was done for a multitude reasons including to provide structural support, abrasion resistance, or for design purposes. EX1010, [0004]; EX1032, [0007] (“The materials forming the exterior layer of the upper may be selected based upon the properties of wear-resistance, flexibility, and air-permeability, for example.”).

38. A POSA would have been aware of several methods to affix a textile material to a shoe upper. *See generally* EX1005. A POSA would have known that these methods include using “pressure sensitive adhesive coating that is previously applied to the textile” effectively creating a bonded composite element. EX1013, 2:13-14; EX1010, [0019]. “Bonding includes bonding through use of glue or other adhesives, through melting and subsequent solidification of a substituent element.” EX1010, [0019]. Sometimes, the “skin layer . . . is bonded to the other layer(s) solely through melting of the skin layer panel so as to fuse the skin layer to one or more other layers.” *Id.*, [0035]. In those cases, the skin material can be “thermoplastic polyurethane (TPU) or other appropriate material.” *Id.*, [0043].

V. THE '932 PATENT

A. Overview of the '932 Patent

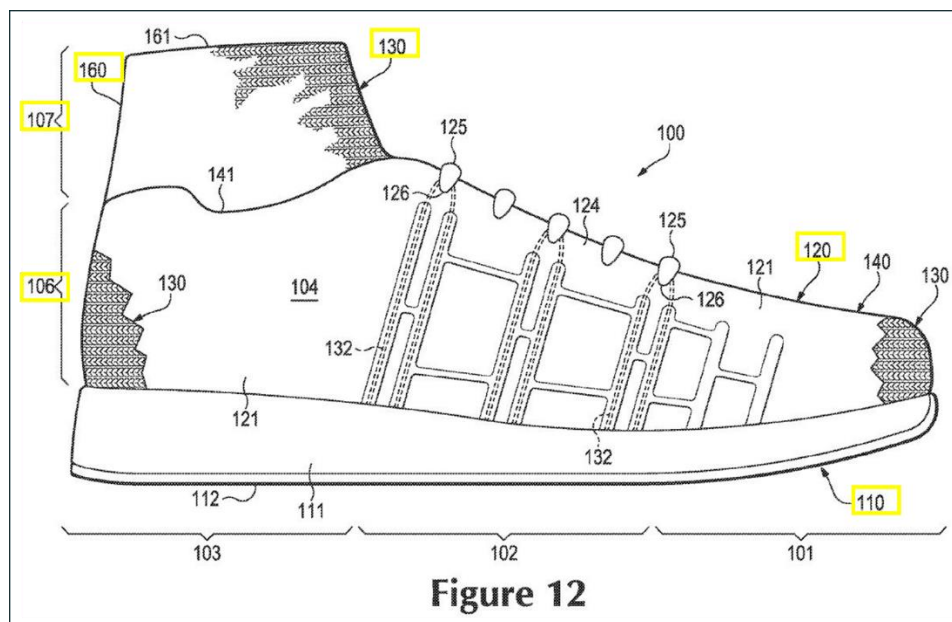
39. In the background of the specification, the '932 patent states that “[c]onventional articles of footwear generally include two primary elements, an upper and a sole structure.” EX1001, 1:20-21. The '932 patent further describes that in such conventional articles of footwear the upper “forms a void on the interior of the footwear for comfortably and securely receiving a foot.” *Id.*, 1:21-23).

40. The background of the '932 patent further describes that “[v]arious materials are conventionally utilized in manufacturing the upper” and that the “upper of athletic footwear, for example, may be formed from multiple material elements” selected based upon “various properties, including stretch-resistance, wear-resistance, flexibility, air-permeability, compressibility, and moisture wicking.” *Id.*, 1:53-58.

41. The '932 patent discloses an article of footwear with an upper and a sole structure secured to the upper. The upper includes two regions: a foot region and an ankle region. *Id.*, 2:36-37. “The foot region covers at least a portion of a foot of a wearer and includes a foot part of a knitted component.” *Id.*, 2:37-39. “The ankle region covers at least a portion of an ankle of the wearer and includes an ankle part of the knitted component.” *Id.*, 2:39-41.

42. The “[k]nitted component 130 extends throughout upper 120 and forms the majority of interior surface 122, thereby defining a portion of the void within upper 120.” *Id.*, 6:39-41; Fig. 15. Knitted component 130 is defined by the ’932 patent as being formed of “unitary knit construction” when formed as a one-piece element through a knitting process. EX1001, 6:45-48. That is, the knitting process substantially forms the various features and structures of knitted component 130 without the need for significant additional manufacturing steps or processes. The ’932 patent explains that the disclosed knitted component is formed of a unitary knit construction despite having seams (i.e., edges where the knitted component are joined) because it is formed as a one-piece knit element. *Id.*, 6:51-56.

43. The ’932 patent discloses that in some conventional articles of footwear “such as basketball footwear and boots, the upper may extend upward and around the ankle to provide support or protection.” *Id.*, 1:39-42. As shown in Figure 12, the ’932 patent discloses a configuration of footwear 100 wherein an “[a]nkle cuff 160 is located in ankle region 107 and forms an ankle part of knitted component 130.” EX1001, 14:45-46. “In many configurations of footwear 100, ankle region 107 corresponds with portions of upper 120 that are intended to cover and extend above lateral malleolus and medial malleolus.” *Id.*, 14:41-44. “[A]nkle cuff 160 and the ankle part of the knitted component 130 may be formed of unitary knit construction with the foot part of knitted component 130.” *Id.*, 14:52-54.

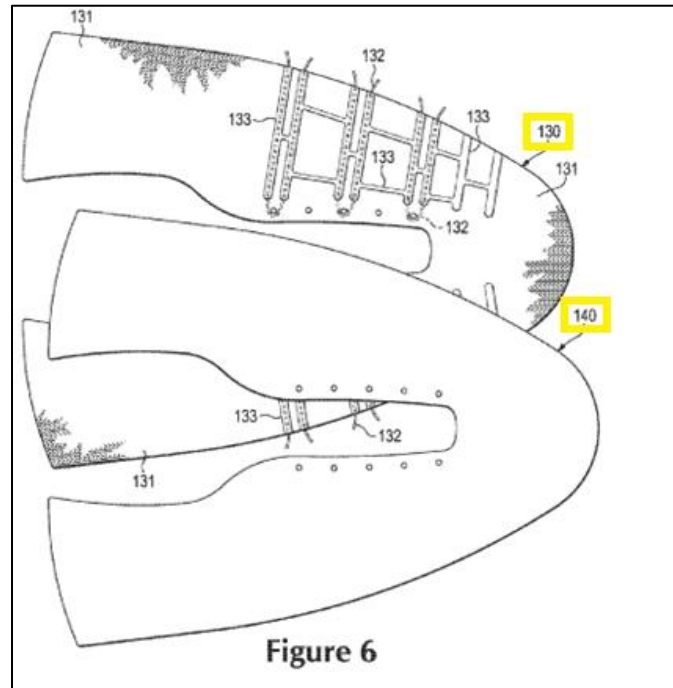


Id., Fig. 12 (annotated).

44. “[A]nkle cuff 160 and other portions of knitted component 130 in ankle region 107 may be formed to have stretch properties.” *Id.*, 15:1-3. Where “ankle region 107 has stretch properties, foot region 106 of upper 120 may stretch to a lesser degree to provide support for the foot and limit movement of the foot relative to sole structure 120.” *Id.*, 15:4-7. The ’932 patent further discloses that in some configurations of the knitted component 130, both regions (foot region 106 and ankle region 107) may have similar stretch properties, and the presence of a skin layer 140 in foot region 106 may limit stretch in foot region 106. *Id.*, 15:10-14.

45. The '932 patent discloses that the “majority of upper 120 is formed from a knitted component 130 and a skin layer 140, in Figure 6 below as shown in Figure 6 below.” *Id.*, 5:43-45. The skin layer may be made from various materials,

“including a polymer sheet, elements of leather or synthetic leather, a woven or non-woven textile, or a metal foil.” *Id.*, 5:66-6:2.



Id., Fig. 6 (annotated).

46. The “[s]kin layer 140 lays adjacent to knitted component 130 and is secured to an exterior of knitted component 130, thereby forming a majority or a relatively large portion of exterior surface 121.” *Id.*, 5:63-66, Fig. 6. But, the skin layer need not cover the entire exterior of the upper. *Id.*, 9:36-38, 18:13-14, 18:20-21, 17:61-63. The adjacent skin layer overlaps with the knitted component, which may “hav[e] different thicknesses.” *Id.*, 2:26-27, Fig. 6.

47. “[E]ach section of skin layer 140 may have different properties . . . [and] may be spaced from each other to expose a portion of knitted component 130.” *Id.*, 18:13-14, 20:21. These sections may also be composed of differing materials

“and positioned in separate areas of knitted component 130.” *Id.*, 9:39-45. “That is, a portion of skin layer 140 formed from one material may be bonded to one area of knitted component 130, and another portion of skin layer 140 formed from another material may be bonded to a different area of knitted component 130.” *Id.*, 9:41-45.

48. The '932 patent discloses that “[t]he combination of knitted component 130 and skin layer 140 provides various advantages to footwear 100. As an example, knitted component 130 and skin layer 140 impart a relatively tight and glove-like fit to upper 120 that secures the foot within footwear 100 during walking, running, and other ambulatory activities.” *Id.*, 6:11-16. Further, the '932 patent discloses that the “[s]kin layer 140 may also be utilized to reinforce areas of upper 120” by inhibiting stretch, enhancing the wear-resistance or abrasion resistance of upper 120, or even imparting water resistance. *Id.*, 6:16-23. “Additionally, forming footwear 100 in this configuration may provide a relatively light weight or mass, support for the foot, uniform fit and conformance to a shape of the foot, and a relatively seamless interior with enhanced comfort for the wearer.” *Id.*, 6:23-27.

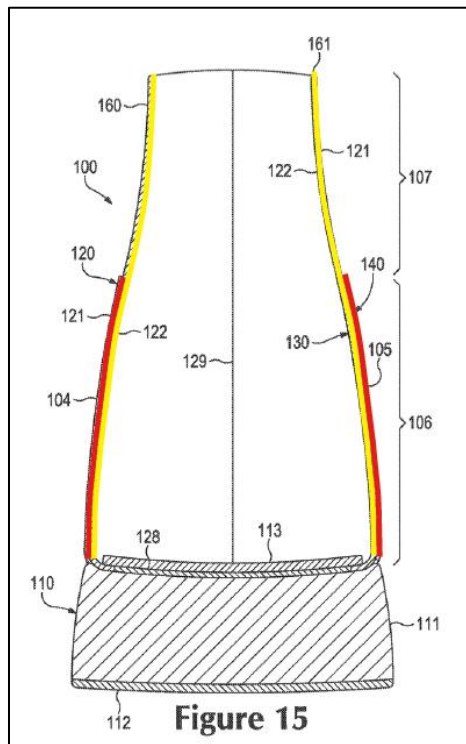
49. The '932 patent also discloses that the “[k]nitted component 130 includes a plurality of protruding areas 133 that extend outward and away from the void within upper 120.” *Id.*, 9:61-63. The '932 patent explains that “[p]rotruding areas 133 form bulges, protrusions, bumps, or other outwardly-extending portions in knitted component.” *Id.*, 9:63-65. Moreover, the '932 patent teaches that “the

combination of protruding areas 133 and skin layer 140 may provide enhanced control of a ball during the sport of soccer.” *Id.*, 10:19-24.

50. The ’932 patent discloses that a variety of processes may be utilized to join knitted component 130 and skin layer 140.” *Id.*, 11:51-53. The skin layer and knitted component may be compressed between the two surfaces “to join the skin layer to the knitted component.” *Id.*, 2:32-34; Fig. 11C. “In some configurations, skin layer 140 may be formed from a thermoplastic polymer material, which may be welded or thermal bonded to knitted component 130.” *Id.*, 11:52-54. The ’932 patent describes that a “thermoplastic polymer material melts when heated and returns to a solid state when cooled sufficiently.” *Id.*, 11:51-64. In particular, the ’932 patent describes heating either one or both of the knitted component and skin layer to a temperature that facilitates bonding. *Id.*, 12:64-13:4.

51. The “[u]pper 120 includes an exterior surface 121 and an opposite interior surface 122. *Id.*, 5:7-8; Fig. 15. The “exterior surface 121 faces outward and away from footwear 100, interior surface 122 faces inward and defines a majority or a relatively large portion of the void within footwear 100 for receiving the foot.” *Id.*, 5:8-11. As shown in annotated Figure 15 below, the knitted component 130—highlighted in yellow—serves as the interior surface 122 where the skin layer 140—highlighted in orange—is attached. The knitted component 130

serves as the exterior surface 121 up around the ankle where there is no skin layer 140.



Id., Fig. 15 (annotated).

B. Claims of the '932 Patent

52. The '932 patent includes 20 claims. Claim 11 is independent. Claims 12-15 depend from claim 11. I have included the claim language for claims 11-15 below and for convenience, I have added labels referencing the claim limitations.

Claim 11	
11.pre	An article of footwear having an upper and a sole structure secured to the upper, the upper comprising:

11.a	a knitted component that includes (a) a foot part for covering at least a portion of a foot of a wearer and (b) an ankle part for covering at least a portion of an ankle of the wearer,
11.b	the foot part and the ankle part being formed of unitary knit construction; and
11.c	a skin layer that is thermally bonded to the knitted component
11.d	the skin layer covering at least a portion of the foot part of the knitted component and forming a portion of an exterior surface of the upper, the skin layer being absent from the ankle part of the knitted component.
Claim 12	
12	The article of footwear recited in claim 11, wherein the foot part of the knitted component is in a foot region of the upper and the ankle part of the knitted component is in an ankle region of the upper, the foot region having less stretch than the ankle region.
Claim 13	
13	The article of footwear recited in claim 11, wherein the ankle part of the knitted component forms (a) another portion of the exterior surface of the upper and (b) a portion of an interior surface of the upper.
Claim 14	
14	The article of footwear recited in claim 11, wherein the ankle part of the knitted component has a continuous structure for extending entirely around the ankle of the wearer.
Claim 15	

15	The article of footwear recited in claim 11, wherein the foot part of the knitted component defines a plurality of protruding areas that extend outward and away from a void within the upper for receiving the foot of the wearer.
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C. Prosecution History of the '932 Patent

53. Counsel has provided me the prosecution history of the '932 patent and I have reviewed it. I understand that during prosecution of the '932 patent, there was one substantive office action. EX1002, 2014-07-24 Non-Final Rejection Office Action, 1. In this action, the Examiner rejected then-pending claims 11-15 as anticipated by U.S. Patent No. 2,147,197 to Glidden (EX1031). EX1002, 2014-07-24 Non-Final Rejection Office Action, 2. As is relevant to my opinion here, the patent owner amended claim 11 to add a requirement that the skin layer be “thermally bonded” to the knitted component. *Id.*, 2014-08-27 Amendment, 5. The Patent Office allowed the claims in response to the patent owner’s amendments. *Id.*, 2014-09-15 Notice of Allowance, 1.

VI. CLAIM CONSTRUCTION

54. I understand from counsel that Nike, Inc. previously asserted the '932 patent against adidas AG, adidas North America, Inc., adidas America, Inc., and adidas International Trading AG (collectively, “adidas”) in a proceeding before the International Trade Commission (hereinafter “adidas ITC”). I understand that in that

proceeding the parties agreed to constructions of certain claim terms of the '932 patent. For purposed of this declaration, I apply the constructions to which Nike previously agreed, as set forth below.

A. “unitary knit construction” (Claims 11, 12, 13, 14, and 15)

55. The phrase “unitary knit construction” appears in independent claim 11 and dependent claims 12-15. In the adidas ITC, Nike agreed that the construction of this phrase would be “formed as a one-piece element through a knitting process,” which is supported by the specification of the '932 patent. EX1001 at 6:45-48 (“As utilized herein, a knitted component (e.g., a knitted component 130) is defined as being formed of “unitary knit construction” when formed as a one-piece element through a knitting process.”); *see also* EX1027, 1.

B. “thermally bonded” (Claims 11, 12, 13, 14, and 15)

56. The phrase “thermally bonded” appears in independent claim 11 and dependent claims 12-14. In the adidas ITC, Nike agreed that the construction of this phrase would be “a securing technique between two elements that involves a softening or melting of a thermoplastic polymer material within at least one of the elements such that the materials of the elements are secured to each other when cooled,” which is supported by the specification of the '932 patent. EX1001 at 11:60-65 (“As utilized herein, the term “thermal bonding” or variants thereof is defined as a securing technique between two elements that involves a softening or

melting of a thermoplastic polymer material within at least one of the elements such that the materials of the elements are secured to each other when cooled.”); see EX1027, 2.

C. Other Terms

57. I understand that other terms of the '932 patent were at issue in the adidas ITC action but are not relevant to my opinion here. Accordingly, for all other terms of the '932 patent's claims, I have given the terms their plain and ordinary meaning as understood by a POSA having read the specification of the '932 patent.

VII. OVERVIEW OF THE PRIOR ART

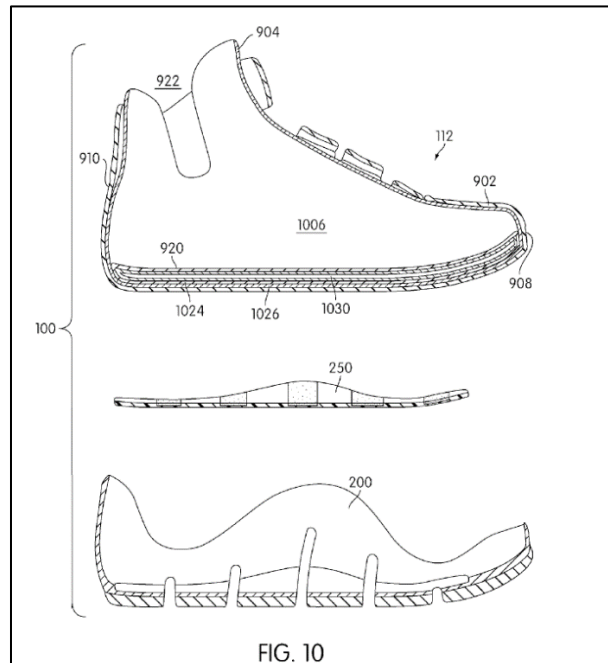
58. Below I provide an overview of selected prior art references. These references are exemplary of the knowledge of a POSA at least as of November 15, 2012.

A. U.S. Patent Application Publication 2010/0313447 to Becker

59. U.S. Patent Application Publication 2010/0313447 to Becker et al. (“Becker”), EX1007, was published on December 16, 2010.

60. Becker discloses an invention that “relates generally to footwear, and in particular an article of footwear with a lightweight and flexible outer member.” EX1007, [003]. Becker discloses that the article of footwear could “also take the form of any other kind of footwear including, for example, running shoes, boots, sandals, as well as other kinds of footwear.” *Id.*, [0048].

61. In particular, Figure 10 discloses footwear 100 with a sole secured to upper 112. Becker discloses that upper 112 includes provisions for tightening opening 102 around a wearer's ankle. *Id.*, [0053]. Becker discloses that upper 112 includes "outer lining 902 and inner lining 904." *Id.*, [0080].



62. Becker discloses that "[i]nner lining 904 may be a sock-like bootie that wraps around a wearer's foot within outer lining 902. Preferably, inner lining 904 is made of a soft and flexible material that helps provide comfort to a wearer's foot. Inner lining 904 may be made of any fabric, including both natural and synthetic materials, as well as any other soft and flexible material commonly used in 'booties' found within articles of footwear." *Id.*, [0080].

63. Becker also discloses that

“outer lining 902 may be configured to provide additional support or to reinforce inner lining 904. Preferably, outer lining 902 is made of a more durable material than inner lining 904. Outer lining 902 could be made of any material commonly associated with footwear uppers, including those materials previously discussed with respect to upper 112. In some embodiments, outer lining 902 may also be made of phylon. Using this multi-layered configuration, a wearer’s foot may be better protected, especially at toe portion 908 and heel portion 910.”

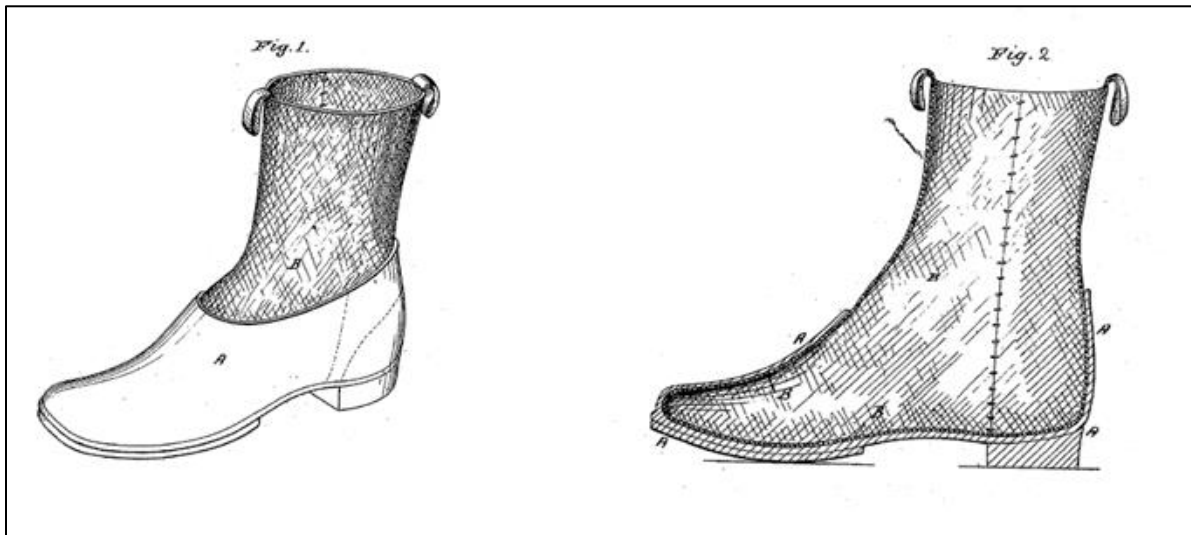
Id., [0081].

64. Further, Becker discloses that the upper 112 of footwear 100 may be made of any material that is both durable and flexible. *Id.*, [0049]. Becker teaches that “[b]y using durable and flexible materials, upper 112 will be able to accommodate a user’s foot in a comfortable fashion while providing the necessary support to maintain the proper function of article of footwear 100. Materials of this type, from which upper 112 may be constructed include, but are not limited to, natural fabrics, synthetic fabrics, leather and other materials that are used in the construction of shoe uppers.” *Id.*

B. U.S. Patent No. 170,332 to Bibbins

65. U.S. Patent No, 170, 332 to Bibbins (“Bibbins”), EX1008 was issued on November 23, 1875.

66. Bibbins discloses a method of making an article of footwear combining a water-proof shoe and a stocking. EX1008, 1:9-10, Fig. 1-2. The water proof shoe portion is “vulcanized-rubber shoe, of ordinary or suitable construction.” *Id.*, 1:20-24, Fig. 1-2. The stocking portion “extends above the shoe a proper distance, to fit the ankle and leg of the wearer.” *Id.*, 1:24-27.

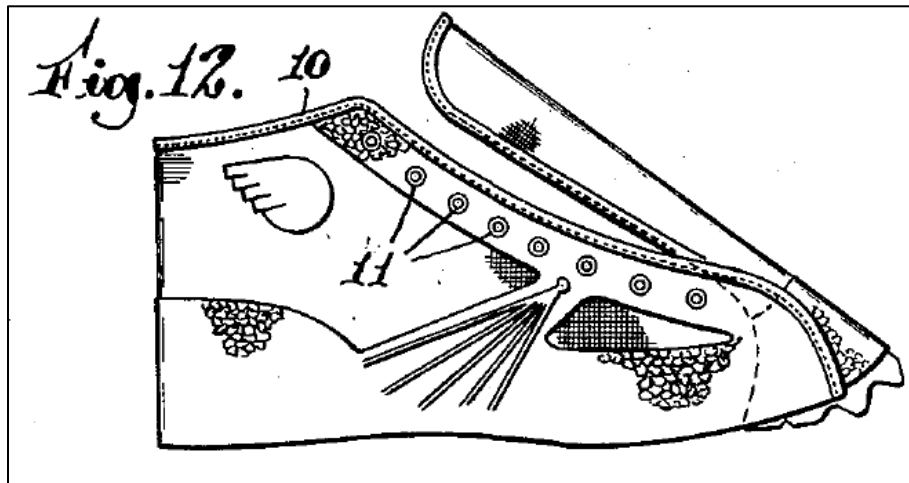


67. Bibbins discloses that the stocking may be attached to the rubber-shoe in “any suitable manner, as will be readily understood by manufacturers of rubber goods.” *Id.*, 1:37-39. Bibbins describes that the “stocking is preferably elastic, which allows it to shape itself better to the leg and ankle.” *Id.*, 2:1-3.

C. U.S. Patent No. 2,213,545 to Chace et al.

68. U.S. Patent No, 2,213,545 to Chace et al. (“Chace”), EX1009, was issued on September 3, 1940.

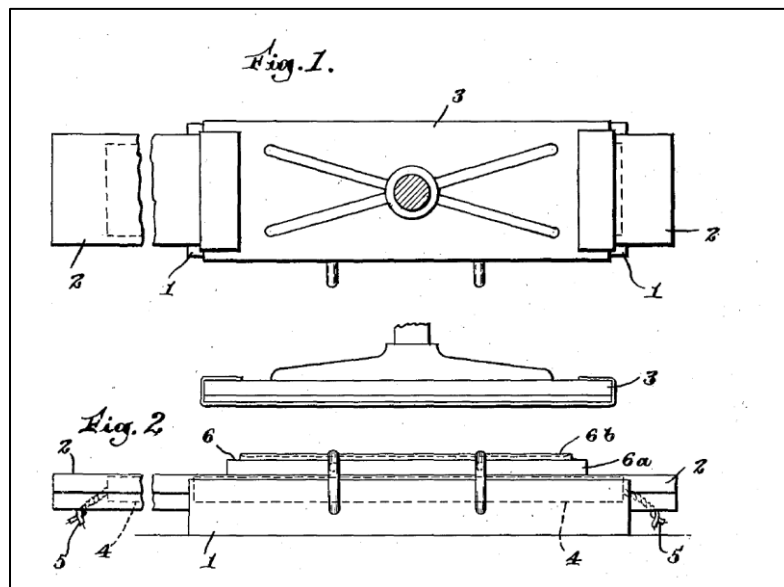
69. Chace discloses that “[i]t has long been common practice to attach separate pieces of preformed rubber trim to a preformed fabric part of a shoe.” EX1009, 1:4-8. Chace discloses an “invention [that] relates to an improved method of attaching rubber trim to fabric shoe parts and more particularly to fabric shoe uppers.” *Id.*, 1:1-3.



70. Chace’s invention provides “that the uppers shall be preformed or cut out of fabric stock before any trim is applied thereto.” *Id.*, 1:33-35. A die “is shaped to and conforms exactly with the outline of an upper and has portions corresponding to all of the trim that is to be attached to the upper.” *Id.*, 1:36-40. The upper and a rubber sheet are then placed on the die and forced “toward the die under relatively light pressure while the die is maintained at a rather high temperature, thus causing the rubber to conform to the delineations of the die which determine the trim elements.” *Id.*, 44-50, Fig. 1-2. This allows the rubber to “readily mould[] into the delineated parts of the die and also enters the mesh of the fabric throughout the

portions of the fabric which are to be covered by the trim.” *Id.*, 1:52-55. The excess material can “be torn away and [the] rubber material can be used again.” *Id.*, 1:59-60.

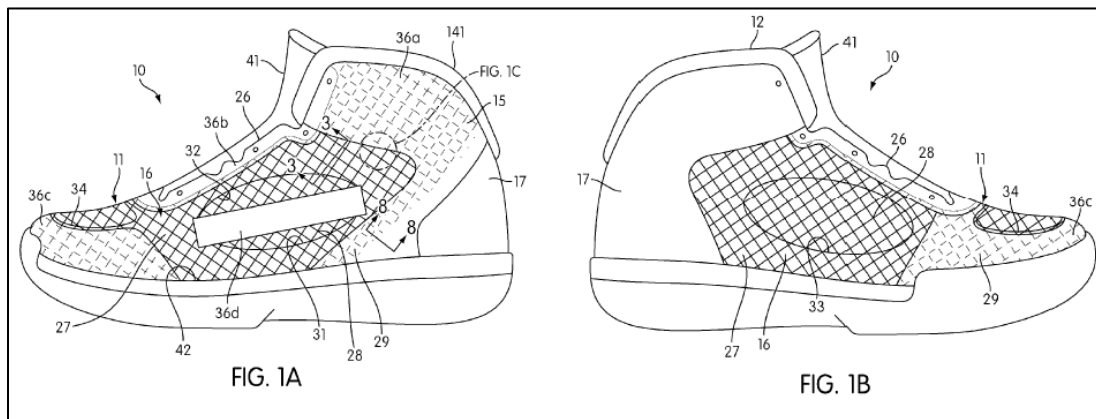
71. Chace discloses an “improved method” that “employ[s] means capable of exerting a rather light pressure against a die heated to a relatively high temperature. Such means are suggested in Figures 1 and 2.” *Id.*, 2:40-46. A heating element 4, indicated by dotted outline, to which electric current may be supplied through cables 5, is shown in Figure 2 below.



D. U.S. Patent Application Publication No. 2011/0088285A1 to Dojan et al.

72. U.S. Patent Application Publication 2011/0088285A1 to Dojan et al. (“Dojan”), EX1010, was published on April 21, 2011.

73. Dojan discloses a shoe with a foamed ankle collar, a heel counter and a tongue as well as an upper attached to a midsole or other sole component. EX1010, [0031]. The upper from the “athletic shoe or other type of footwear” in Dojan has a “substrate layer formed from a substrate material, a mesh material layer and one or more skin material layers.” *Id.*, Abstract. “The substrate layer can also include one or more openings for ventilation, weight reduction or other purposes.” *Id.* [0017]. Dojan explains that the “mesh can reinforce the substrate and help retain individual portions of the substrate in a desired arrangement, thereby permitting larger ventilation holes in the substrate.” *Id.* Dojan also discloses some embodiments where the upper of the shoe may include an additional lining (e.g., a “bootie”) between substrate layer and wearer’s foot. *Id.*, [0028].



74. Dojan discloses that the skin layer, which could also be referred to as the outer lining, “may cover the mesh layer in one or more areas to provide additional durability and/or for decorative purposes.” *Id.*, [0017]. FIGS. 1A and 1B depict embodiments wherein the skin layers are formed by panels. *Id.*, [0026]. Dojan

discloses that the material of skin layer panels provides abrasion protection for mesh layer and that the panels can also be added for decorative purposes. *Id.*, [0030]. Dojan discloses that skin layers may also include other panels such as those “in the shape of a logo or other identifier of the manufacturer of shoe 10.” *Id.*

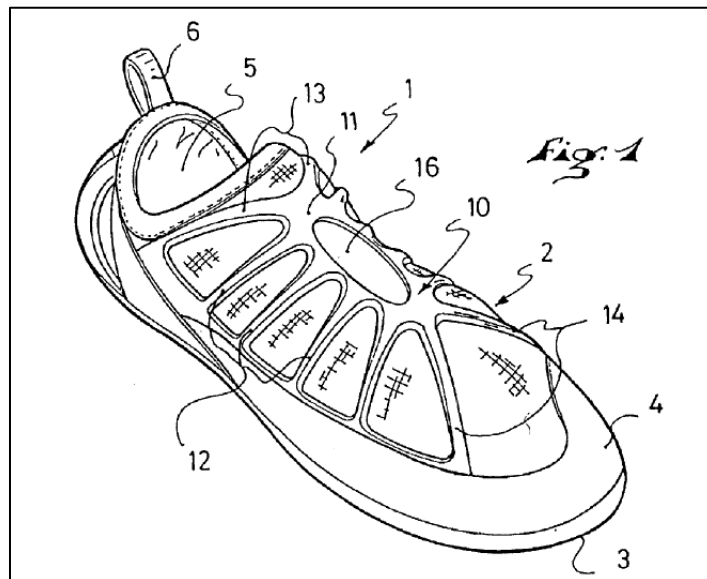
75. Dojan discloses several different methods of attaching a shoe upper to an external “skin layer.” *Id.*, Abstract. One of those methods includes the use of a skin material made of thermoplastic polyurethane. *Id.*, [0004], [0043] (“In at least some embodiments, the skin material is a thermoplastic polyurethane (TPU) or other appropriate material.”). Dojan discloses that when a thermoplastic material is used as either the skin layer or the substrate, one could “rely on melting of the skin and/or substrate layers themselves to achieve bonding.” *Id.*, [0035].

76. Dojan further discloses that “[i]n at least some embodiments, the mesh material of layer 28 is a single layer warped knit material” and that the disclosed skin material conforms to that mesh material so that a contour of the mesh material pattern is maintained on the outer surface of the skin material. *Id.*, [0038], [0042]. Dojan explains that the resulting contours allow “a potential purchaser of [the] shoe [to be] made aware of the structure of shoe [],” and that the “conformal nature of the contact between a skin material panel and underlying mesh and substrate layer materials helps to increase the bonded surface areas and overall material strength.” *Id.*, [0038].

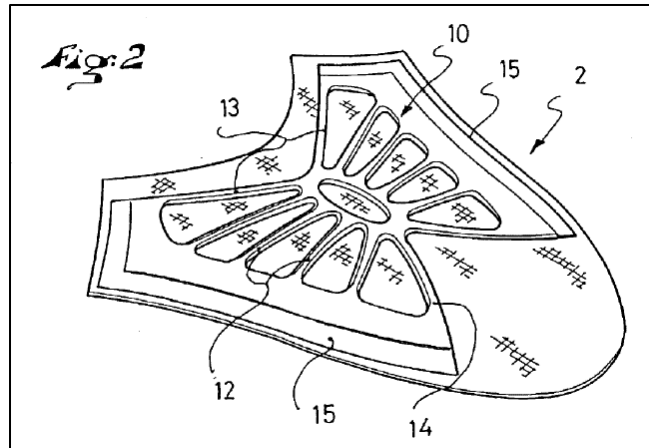
E. U.S. Patent No. 6,862,820 to Farys et al.

77. U.S. Patent No. 6,862,820 to Farys et al. (“Farys”), EX1011, was issued March 8, 2005.

78. Farys discloses “[a]n article of footwear including a sole and having a low upper that is at least partially elastic.” EX1011, Abstract. Farys discloses a shoe “designed more particularly for sporting activities such as climbing, dancing, water sports, fighting sports, etc.” *Id.*, 1:14-17, Fig. 4. “Th[e] upper 2 is preferably made of a completely elastic yet light material, such as LYCRA® or neoprene.” *Id.*, 2:39-40. Fig. 2.



79. Farys discloses that “upper 2 is low, meaning that it extends below the malleoli so as not to hinder the ankle articulation.” *Id.*, 2:34-35, Fig. 1. “As the case may be, the upper 2 could be mid-high, i.e., covering the malleoli without nevertheless hindering the mobility of the ankle.” *Id.*, 2:36-38.



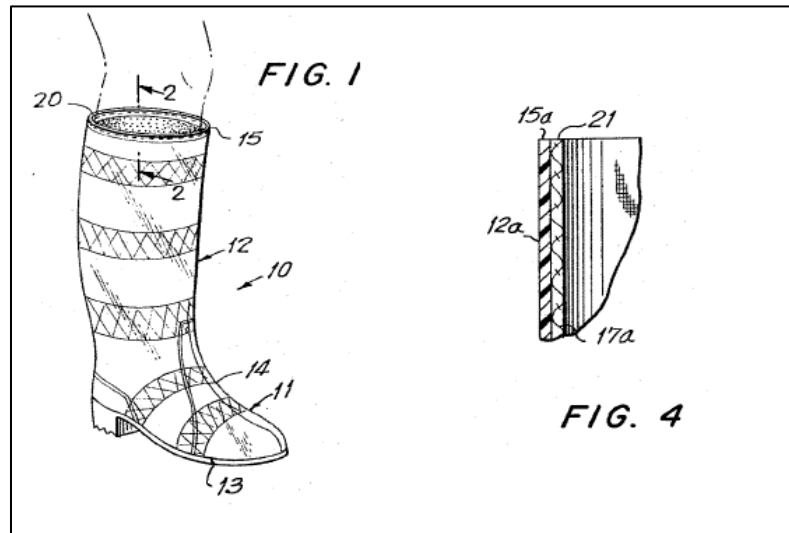
80. Farys further teaches an “elastic tightening system 10 that is affixed to the upper 2.” *Id.*, 3:9-10, Fig. 4. The “affixing can be done by any means such as gluing sealing, duplicate molding, or stitching.” *Id.*, 3:10-12. “The assembly can also be made by a high frequency sealing. This construction offers the advantage that transparent rubber can be used for the tightening system 10 since the assembly is done without glue.” *Id.*, 3:26-29.

F. U.S. Patent No. 3,319,360 to Nadler

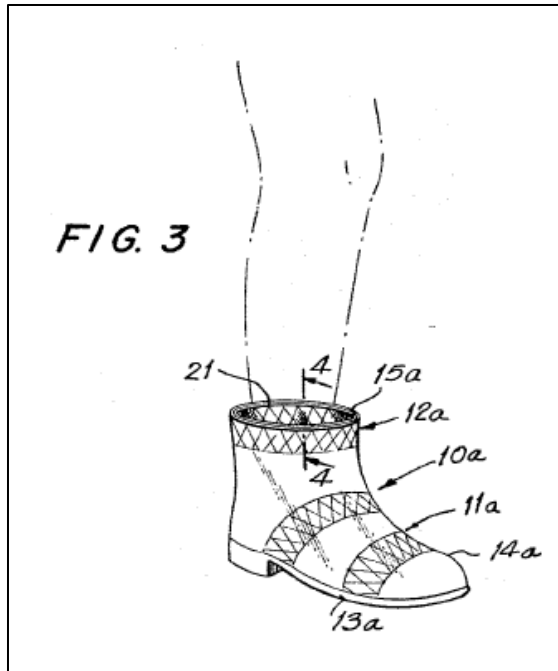
81. U.S. Patent No. 3,319,360 to Nadler (“Nadler”), EX1012 was issued May 16, 1967.

82. Nadler discloses an article of footwear that “uniquely incorporates a design adapted to match other articles of apparel and is completely waterproof.” EX1012, 1:15-17. The footwear disclosed includes a “foot-covering part 11 [that] is provided with a sole 13 for bearing the wearer’s weight, and an upper 14 over the sole for covering the wearer’s foot. *Id.*, 1:59-61, Fig. 1. “A sock-like liner 17 is

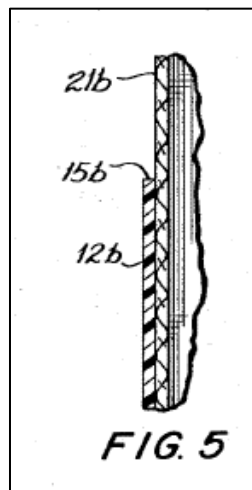
disposed interiorly of the unitary foot and leg coverings 11 and 12, and may be of a knit fabric, such as conventionally employed in stockings, and is desirably provided with a multicolor design pattern for visual presentation through the foot and leg coverings.” *Id.*, 2:1-5. Fig. 4.



83. In the embodiment shown in Fig. 3, “the leg covering 12a terminates at its upper end 15a just above the ankle of a wearer, in the manner of a low-cut boot.” *Id.*, 2:39-41. Nadler discloses that the adherence of sock-liner 17 to leg covering 11 and 12 may be achieved by suitable adhesive, or by thermoplastic welding or heat-sealing of the outer foot and leg coverings to the liner. *Id.*



84. Nadler also discloses an exposed knitted sock-liner 21b that extends above the leg covering 12. EX1012, 1:51-53. This embodiment is shown in Fig. 5.



G. WIPO Publication No. WO2004/012544 to Wildeman

85. World Intellectual Property Organization Publication No. WO2004/012544 to Wildeman (“Wildeman”), EX1013, was published on February 12, 2004.

86. Wildeman discloses that “[d]uring the shoe manufacturing process it is often necessary to affix a textile material to a second surface such as foam, leather, or another textile thereby giving rise to a multi-layer composite construction. Typically, the textile is held to the second surface by stitching or other substantially permanent attachment techniques.” EX1013, 2:4-7. Various aspects of Wildeman’s invention “relate to textile materials incorporating heat activated coating for use in shoe assembly, equipment and related techniques adapted to facilitate attachment of such textile materials to other materials during shoe assembly[.]” *Id.*, 1:12-15.

87. Wildeman’s disclosure “provides advantages and alternatives over the prior art by providing materials, equipment and processes which permit the replacement of the pressure sensitive adhesive coating with a hot melt (thermoplastic) coating such as a co-polyester[.]” *Id.*, 2:30-33.

88. Wildeman discloses that “[t]he coating is present in an amount and is of a composition, such that upon application of heat and pressure such as in a hot press or the like, the hot melt coating may be melt bonded to a second surface material thereby establishing a bond between the base textile and second surface 10 material.” *Id.*, 3:6-10.

VIII. OVERVIEW OF GROUNDS

89. Below is a table listing the grounds of unpatentability for the ’932 patent to which my opinions relate:

Ground	Reference(s)	Basis	Challenged Claims
1	Becker in combination with Dojan	§ 103	11-15
2	Becker in combination with Wildeman	§ 103	11-14
3	Farys in combination with knowledge of a POSA	§ 103	11-14

IX. GROUND 1: CLAIMS 11-15 ARE OBVIOUS IN LIGHT OF BECKER IN COMBINATION WITH DOJAN

90. Becker describes a shoe with an upper component comprising a knitted inner lining and an outer, skin-like, lining as recited in the challenged claims. I understand from Dr. Schut that a POSA would have understood that thermal bonding, like that described in Dojan, was a well-known process for attaching skin layers to a knitted upper.

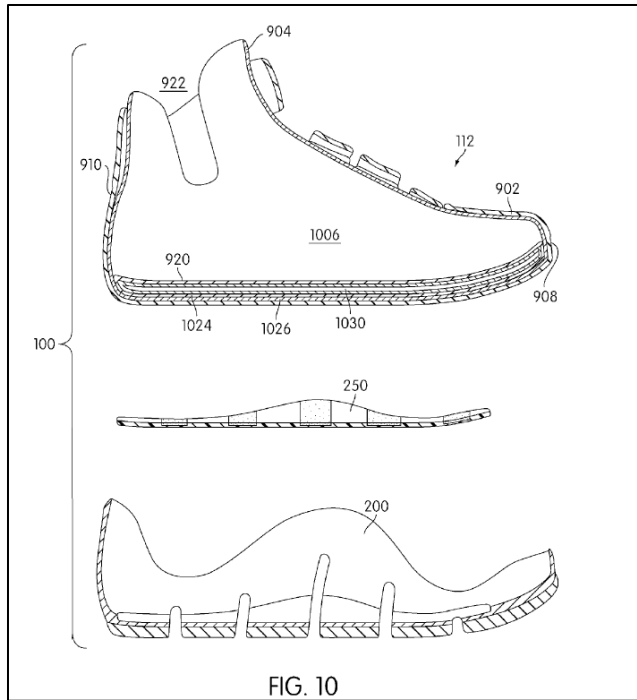
A. Claim 11 is obvious in light of Becker in combination with Dojan

1. Preamble

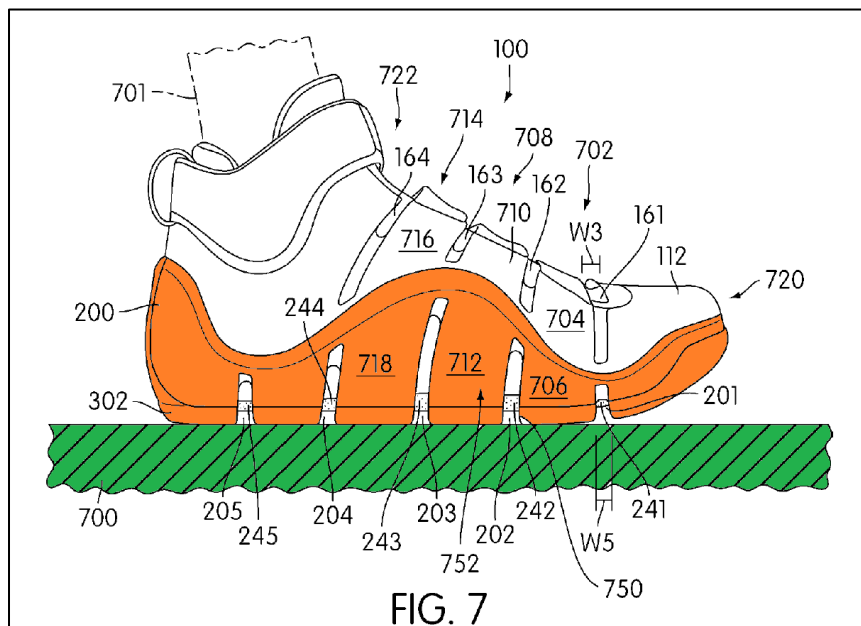
91. The preamble of claim 11 recites “An article of footwear having an upper and a sole structure secured to the upper.” I understand from counsel that this initial phrase of a patent claim does not necessarily limit the claims. I discuss the

preamble here, however, because even if this phrase of the challenged claims is limiting, Becker discloses it.

92. Becker describes a shoe and in particular a shoe with a lightweight and flexible sole, referred to as the “outer member 200.” EX1007, [0003] (“The present invention relates generally to footwear, and in particular an article of footwear with a lightweight and flexible outer member.”). In one of Becker’s preferred embodiments, seen in Figure 10 below, “upper 112 [which] includes outer lining 902 and inner lining 904.” *Id.*, [0079]. Further, Figure 10 shows the “outer member 200 may be also fixed directly to the outer lining 902 . . . [p]referably outer member 200 and outer lining 902 may be attached using glue or another type of adhesive.” *Id.*, [0085]. A POSA would have understood from the disclosures in Becker, including Figure 10, the “outer member 200” to be the sole of the shoe and that “outer member 200” was secured to “upper 112.” A POSA therefore would have understood from Figure 10 of Becker that the disclosed shoe includes an upper secured to a sole.



93. Further, Figure 7 of Becker shows that outer member 200 (in orange below) makes contact with the ground (in green below), confirming that outer member 200 is the sole of the shoe. *Id.*, [0070], Fig. 7.



Id., Fig. 7 (annotated).

94. Becker explains that the configuration depicted in Figure 7 “may represent the orientation of article of footwear 100 just after a wearer has stepped down on the ground surface 700.” *Id.*, [0070].

95. As a result, all elements of the preamble are disclosed in Becker.

2. Limitation 11.a

i. “the upper comprising: a knitted component that includes (a) a foot part for covering at least a portion of a foot of a wearer and”

96. Becker’s upper includes “an inner lining or ‘bootie’ configured to wrap around a wearer’s foot in a manner similar to a sock.” EX1007, [0078]; *see also id.*, [0080] (the inner lining is a “sock-like bootie that wraps around a wearer’s foot.”); [0049] (explaining that “upper 112 will be able to accommodate a user’s foot”). A POSA would have understood that “accommodating” and “wrap around” the foot meant that the inner lining would cover the foot of the wearer. *See supra* ¶ 39 (The background of the ’932 patent acknowledges that in such conventional articles of footwear the upper “forms a void on the interior of the footwear for comfortably and securely receiving a foot.”).

97. Becker also explains that the inner lining “is made of a soft and flexible material that helps provide comfort to a wearer’s foot.” EX1007, [0080]. Becker goes on to explain that the inner lining “may be made of any fabric, including both natural and synthetic materials, as well as any other soft and flexible material

commonly used in ‘booties’ found within articles of footwear.” *Id.*, [0080]. A POSA would have known that socks and booties are commonly made from knitted fabrics. *See e.g.*, EX1012, 2:1-5, Fig. 4 (disclosing a “sock-like liner” made “of a knit fabric”); EX1018, 80 (“Fabrics used in apparel products are either knitted . . . from natural, man made, or blended yarns.”). A knit fabric would allow the inner liner to have the flexibility to wrap around the wearer’s foot. *Id.* (“In knitting, yarns are looped together in successive rows-a process that gives more natural stretch to the fabric, although the actual result depends on the fiber content of the yarn and the yarn construction.”). Additionally, a POSA would have been aware that knitted fabrics were widely used in the footwear industry. *See supra* Section IV.B. Thus, a POSA would have understood the inner lining disclosed in Becker would include those made from a knitted material.

98. A POSA would have further understood that knitted fabrics were often used in footwear, including both socks and shoes, because of their numerous advantages “such as excellent moisture permeability, air permeability, attractive [] appearance and appropriateness for foot.” *See supra* Section IV.B; *see also supra* ¶ 40 (The background of the ’932 acknowledges that it was known that materials were selected based upon “various properties, including stretch resistance, wear-resistance, flexibility, air-permeability, compressibility, and moisture wicking.”). For example, Dojan discloses using a warp knit liner due to its “numerous

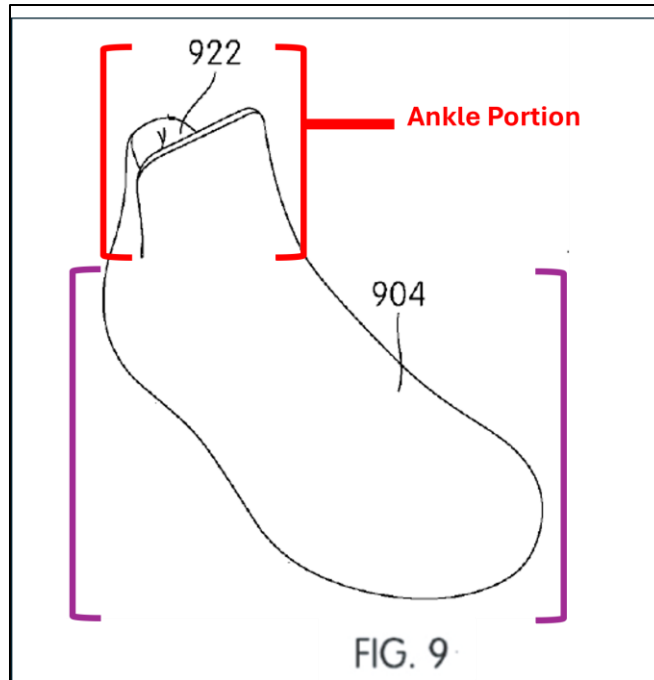
advantages,” such as its ability to “reduce weight and to facilitate ventilation of the shoe interior.” EX1010, [0087].

99. A POSA would have known that a knitted inner lining would provide benefits to the shoe and that making the inner lining of Becker using a knitted material would have been well within the skill in the art. *See, e.g.*, EX1008, 1:28-36 (disclosing a “stocking portion” of an article of footwear, preferably made from fabric used for “knit goods”); EX1012, 2:1-5, Fig. 4 (disclosing a “sock-like liner” for an article of footwear, that “may be of a knit fabric”). Therefore, a POSA would have been motivated to use a knit fabric for the inner lining of Becker with a reasonable expectation of success.

100. As a result, a knitted upper component that covers a portion of a foot of a wearer would have been obvious in light of Becker alone or in combination with Dojan.

ii. “an ankle part for covering at least a portion of an ankle of the wearer”

101. The shoe disclosed in Becker includes an upper that covers at least a portion of an ankle of the wearer. For example, Figures 9 and 10 depict a boot which has an upper with a section designed to cover a wearer’s foot (shown in purple) and a section that extends upward to cover a wearer’s ankle (shown in red). *See* EX1007, Figs. 9-10; EX1029, 1 (defining boot as one that is ankle height).



EX1007, Fig. 9 (annotated).

102. Therefore, a POSA would have understood that Becker's upper covers at least a portion of the ankle.

103. Additionally, Becker explains that it is preferable for the upper of the shoe to include provisions for tightening the opening around a wearer's ankle. *Id.*, [0053]. A POSA would have understood that in order for an upper to tighten around a wearer's ankle, the upper would necessarily need to have a portion covering said ankle. *See supra* ¶ 43 (The background of the '932 patent describes conventional articles of footwear to have an upper that "may extend upward and around the ankle to provide support or protection from the ankle.")

104. Thus, a shoe with an upper covering at least a portion of an ankle of the wearer would have been obvious in light of Becker alone or in combination with Dojan.

105. As a result, all the elements of limitation 11.a would have been obvious in light of Becker in combination with Dojan.

3. Limitation 11.b

106. Limitation 11.b recites “the foot part and the ankle part being formed of unitary knit construction.”

107. As explained above, I understand that in the '932 patent a “unitary knit construction” means “formed as a one-piece element through a knitting process.” As explained above (*supra* Section IX.A.2.i), a POSA would have understood that Becker contemplated an inner lining made of a knitted fabric or, alternatively, a POSA would have been motivated to use a knitted fabric based on, for example Dojan. Becker discloses an inner lining that is a “sock-like bootie that wraps around a wearer’s foot.” EX1007, [0080]; Figure 10. This inner lining is depicted in Figure 9 with a foot portion and an ankle portion as a single piece. Additionally, Becker describes the inner lining as a “sock-like” configuration. *Id.*, [0080]. A POSA would have understood from at least these disclosures that Becker taught that the inner lining could be a one-piece, knitted element, like a traditional sock.

108. A POSA would have been specifically motivated to use a unitary construction for the “sock-like” inner lining disclosed in Becker, due to its many advantages. In my almost twenty years in the footwear industry, I have frequently been involved in the design considerations of shoe construction. In my experience with shoe construction, comfort and fit for the wearer as well as manufacturing logistics are important considerations. In my experience, when considering all of these factors, a shoe that has fewer seams will generally be more comfortable, provide a good fit for the wearer, and requires less manufacturing work. A POSA would have therefore accounted for these considerations and would have been motivated to use a unitary knit lining to provide the stated benefits. *See e.g. id.*, [0080].

109. As a result, all of the elements of limitation 11.b would have been obvious in light of Becker alone or in combination with Dojan.

4. Limitation 11.c

110. Limitation 11.c recites “a skin layer that is thermally bonded to the knitted component.”

111. I understand that in the ’932 patent a skin layer “is secured to an exterior of knitted component 130” and “may also be utilized to reinforce areas of upper 120.” EX1001, 5:63-64, 6:18-19. I further understand that in the ’932 patent “thermally bonded” means “a securing technique between two elements that

involves a softening or melting of a thermoplastic polymer material within at least one of the elements such that the materials of the elements are secured to each other when cooled.” *See supra* Section VI.B.

112. The outer lining disclosed in Becker covers the inner lining, which a POSA would understand to be a skin layer. EX1007, [0081]. According to Becker, the outer lining may be configured to provide additional support or to reinforce the inner lining. *Id*; *see also* EX1001, 6:18-22. Becker states that preferably the outer lining is made of a more durable material than the inner lining and could be made of *any material* commonly associated with footwear uppers, including phylon. EX1007, [0049], [0081]. Becker describes the outer lining as being both durable and flexible and including materials such as natural fabrics, synthetic fabrics, leather and other materials that are used in the construction of shoe uppers. *Id*. This is in line with the description of a “skin layer” in the ’932 patent. For example, the outer lining reinforces areas of the knitted upper providing protection and provides wear and abrasion resistance. *Compare* EX1001, 6:18-22 *with* EX1007, [0081]. Further, Becker explains that the outer lining may be made from phylon, which I understand from Dr. Schut is a thermoplastic commonly used in footwear manufacturing. EX1007, [0081]; EX1005, ¶ 43. Similarly, use of such thermoplastic materials for the skin layer is specifically disclosed in the ’932 patent. EX1001, 9:9-12. Ultimately, a POSA would have understood from Becker that using this multi-

layered configuration—of an inner and outer lining—may better protect a wearer’s foot. EX1007, [0081].

113. I understand from Dr. Schut that a POSA would have understood that “phylon,” which was disclosed by Becker to be a “preferred embodiment” of the outer lining, is a thermoplastic—foam ethylene vinyl acetate. EX1005, ¶ 43.

114. In deciding which of the materials disclosed by Becker to use as the outer lining, a POSA would consult her team members with knowledge in materials. A POSA would have understood from her team member(s) that selecting thermoplastic, such as phylon, would “create skin layers that provide abrasion protection . . . and/or to achieve different aesthetic effects.” EX1010, [0004]. Thus, a POSA would have been motivated to use a thermoplastic like phylon as a skin layer (or outer lining) to achieve the protection discussed in Becker.

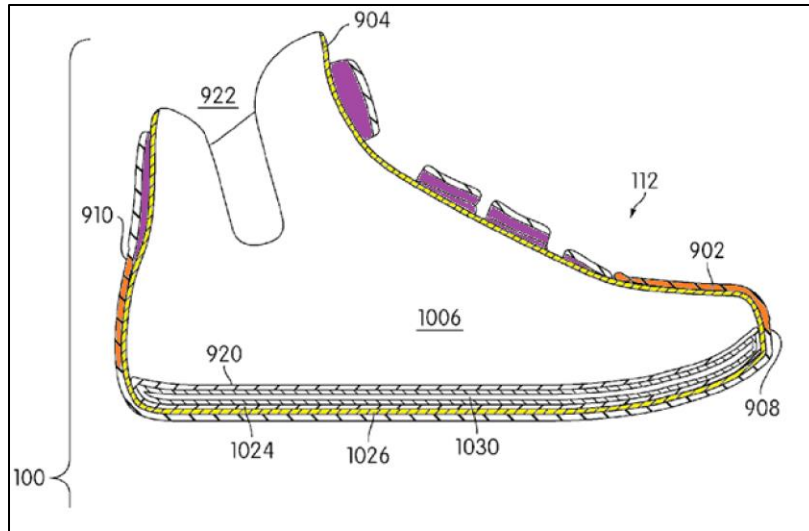
115. A POSA would have known that there were several ways to attach the outer lining to the inner lining as described in Becker. I understand from Dr. Schut that a POSA would have been motivated to use thermal bonding to attach the outer lining to the inner lining of Becker. EX1005 ¶¶ 44-45. I further understand from Dr. Schut a POSA would have had a reasonable expectation of success in using thermal bonding to attach the thermoplastic outer lining to the a knitted inner lining, such as what is disclosed in Becker. *Id.*

116. As a result, and based in part on the opinions of Dr. Schut, all elements of limitation 11.c would have been obvious in light of Becker in combination with Dojan.

5. Limitation 11.d

117. Limitation 11.d recites “the skin layer covering at least a portion of the foot part of the knitted component and forming a portion of an exterior surface of the upper, the skin layer being absent from the ankle part of the knitted component.” As the ’932 patent explains, the skin layer does not need to cover the entire exterior of the upper and “[e]ach section of skin 140 may have different properties . . . [and] may be spaced from each other to expose a portion of the knitted component 130.” EX1001, 18:13-14, 20:21.

118. Becker discloses that its outer lining covers a portion of the foot part of the upper. EX1007, Fig. 10. Becker explains that the outer lining should be “made of a more durable material than [the] inner lining” because the outer lining forms the exterior surface of the upper. *Id.*, [0081]. Further, as previously explained, the outer lining is similar to a “skin” because it is used to reinforce the inner lining. *See supra* ¶ 112. Figure 10 in Becker shows a shoe with an outer lining 902—shown in orange—covering at least a portion of the upper that covers the wearers foot (i.e., the foot part). *Supra* Section IX.A.2.i. Figure 10 also illustrates that the outer lining forms an exterior surface of the upper.



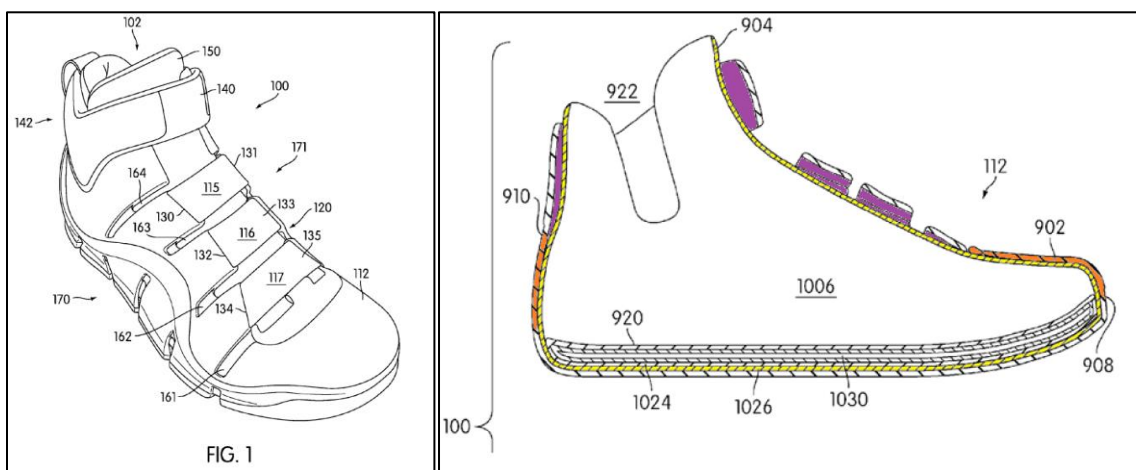
EX1007, Fig. 10 (annotated).

119. Additionally, Figure 10 shows that Becker’s outer lining does not extend up to and around the ankle part. *See id.* Specifically, Figure 10 includes an inner lining 904—shown in yellow—that covers the foot of the wearer and a portion of the ankle of the wearer. *See id.* Further, the outer lining 902 is not bound to inner lining 904 around the ankle. *See id.*

120. Becker’s Figure 1 and 10 illustrate that the ankle portion includes an ankle strap. *Id.*, Figs. 1, 10. Becker explains that, “upper 112 also includes provisions for tightening opening 102 around a wearer’s ankle,” in the form of an ankle strap that “is preferably configured to wrap around upper 112 at the ankle portion 142.” *Id.*, [0053], Fig. 1. A POSA would have understood that the ankle strap would be able to move independently of the inner lining and therefore would

not be affixed to the inner lining entirely around the ankle, so as to still allow different degrees of tightness around the ankle.

121. Due to the presence of the ankle strap, a POSA would have understood that outer lining 902 is not adhered to the inner lining 904 around the ankle of the wearer and, therefore, does not serve as a skin layer around the ankle. This is shown in Figure 10 which depicts that the outer lining 902—highlighted in orange—is not attached to the inner lining 904 surrounding the ankle. *Id.*, Fig. 10. A POSA would have understood Figure 10 to show that the area around the ankle includes a gap between the outer lining and inner lining 904. This gap is shown in purple in the figure below. Therefore, a POSA would have understood that the ankle strap is not part of the skin layer, as claimed in the '932 patent, because it is not attached to the inner lining.



Id., Figs. 1, 10 (annotated).

122. Separately, a POSA would have been motivated to exclude a skin layer from around the ankle of the shoe disclosed in Becker. The outer lining of Becker is made of a durable material used to protect the foot. *Id.*, [0081]. A POSA would have understood that to provide protection to the foot, the durable material would need to be stiff, which would make it less stretchy, and would restrict mobility of the ankle of the wearer. A POSA would have known of the importance of maintaining flexibility in the ankle portion of a shoe and not of having the outer lining not be affixed to cover the ankle. EX1011, 2:36-38 (disclosing embodiment where upper “could be mid-high, i.e., covering the malleoli without nevertheless hindering the mobility of the ankle.”).

123. Given the importance of having flexibility and mobility around the ankle, a POSA would have also separately considered removing the ankle strap. A POSA would have understood Becker to contemplate such an embodiment. Becker explicitly discloses that “[a]lthough three flexible straps at the instep and one ankle strap are shown in this preferred embodiment, in other embodiments any number of straps or other fasteners may be used.” EX1007, [0055]. Given Becker’s disclosure of an embodiment where the ankle strap is removed, a POSA would have had a reasonable expectation of success in removing it. *See e.g.*, EX1012, 1:51-53 (showing an embodiment where in the knitted component extends above and beyond the outer covering). For example, a POSA would have been aware of shoe designs

wherein the stiff outer linings were removed to provide an inner component that extended above the outer lining allowing for greater mobility. *See e.g.*, EX1012, 1:51-53 (Figure 5 discloses removing an outer lining such that the sock-like liner extends up and above the outer covering).

124. As a result, all elements of claim 11.d are disclosed or rendered obvious by Becker.

* * *

125. Taken together, Claim 11 would have been obvious in light of Becker in combination with Dojan for the reasons discussed above.

B. Claim 12 is obvious in light of Becker in combination with Dojan

126. Dependent claim 12 depends from claim 11 and recites: “wherein the foot part of the knitted component is in a foot region of the upper and the ankle part of the knitted component is in an ankle region of the upper, the foot region having less stretch than the ankle region.” As the ’932 patent explains, “the presence of . . . skin layer 140 in foot region 106 may limit stretch in foot region 106.” EX1001, 15:12-14. The ’932 patent further states that the skin layer is “secured throughout knitted component 130” and may “cover[] substantially all of knitted component 130,” but need not cover the entire exterior of the upper. *Id.*, 9:36-38, 18:13-14, 18:20-21, 17:61-63.

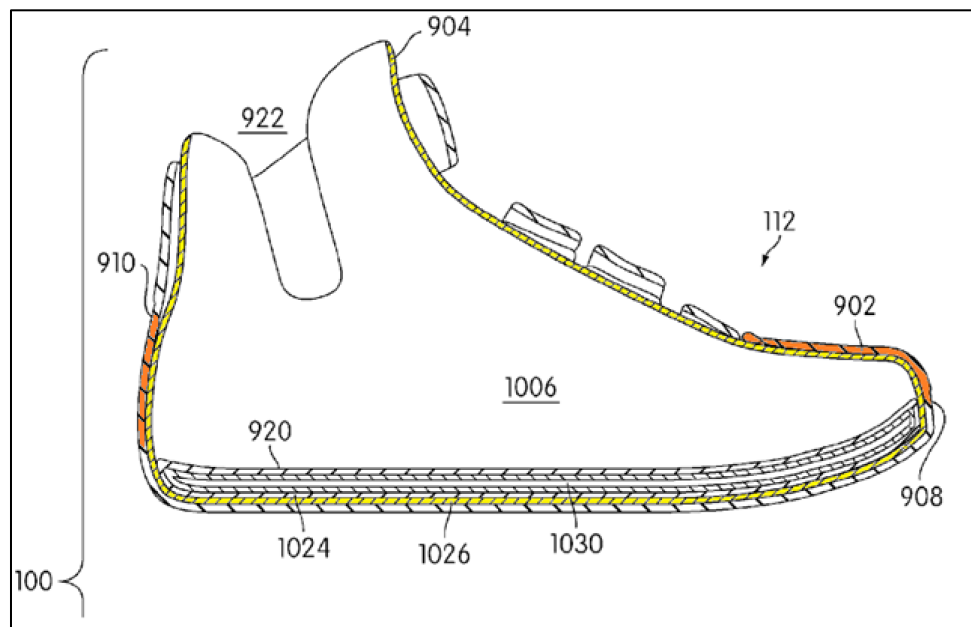
127. A POSA would have understood that the shoe disclosed by Becker would have an inner lining with a foot region having less stretch than the ankle region. As described above, Becker discloses a shoe with an inner lining wherein the foot region is covered by an outer lining which does not extend up to the ankle region. See Section IX.A.4-5. Becker discloses that the outer lining is made from a more durable material than the inner lining that provides additional support and reinforcement to the foot. EX1007, [0081]. A POSA would have understood that the more durable material discussed in Becker would create a firm covering of the inner lining thereby providing protection to the wearer's foot and would limit the stretch of the portions with an outer lining attached. See *id.* For example, a POSA would have understood that the example that Becker includes as a preferred outer lining (phylon) is a plastic that would have less stretch than a knitted fabric. EX1005, ¶¶ 25, 43. The ankle region of Becker, which has no outer lining, is comprised of only the flexible inner lining. This is consistent with a POSA's understanding that the ankle would have needed to have more mobility and more stretch than the foot region. The POSA, therefore, would have been motivated to ensure that the ankle region would be more flexible than the outer lining.

128. As a result, claim 12 would have been obvious in light of Becker in combination with Dojan.

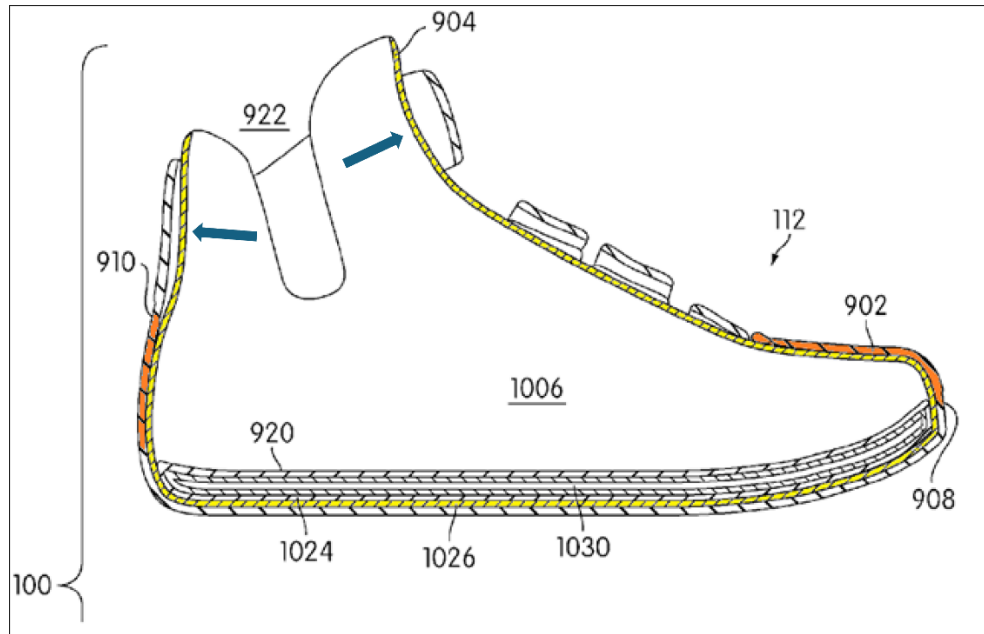
C. Claim 13 is obvious in light of Becker in combination with Dojan

129. Dependent claim 13 depends from claim 11 and recites: “wherein the ankle part of the knitted component forms (a) another portion of the exterior surface of the upper and (b) a portion of an interior surface of the upper.”

130. As previously explained, Becker discloses an upper with an outer lining that does not cover the ankle portion of the inner lining. *See supra* Section IX.A.5. Further, Becker does not describe other layers of material either on the exterior or interior of the inner lining. A POSA would have understood that Becker thus discloses that the part of the inner lining covering the ankle comprises both a portion of the interior surface and exterior surface. Figure 10 demonstrates this, as a POSA would understand that the inner lining (in yellow) is both part of the exterior surface and the interior surface.

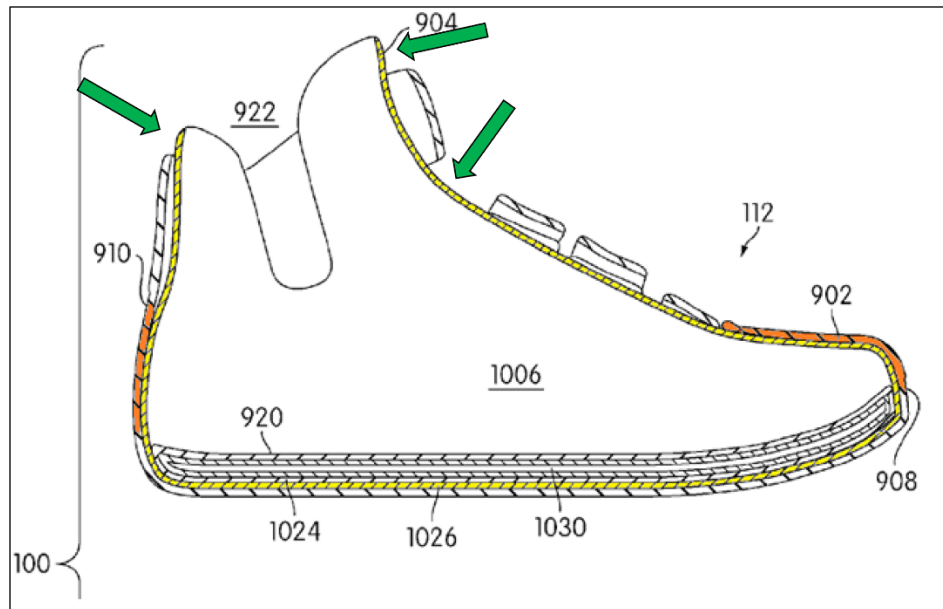


EX1007, Fig. 10 (annotated). Specifically, a POSA would have understood that the inner lining makes up a part of the interior surface in the ankle region, at least including a portion of the back of wearer's foot and ankle and a portion of the front of the wearer's ankle, as shown by the blue arrows below.



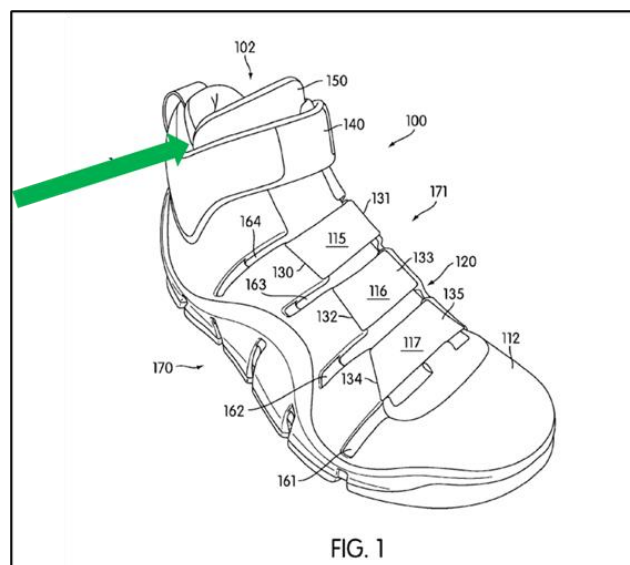
Id. (annotated).

131. Further, a POSA would have understood that the inner lining forms a part of the exterior surface in the areas that extend up the ankle above where the outer layer stops being adhered to the inner layer, as shown by the green arrows below.



Id. (annotated).

132. A POSA would have further understood Figure 1 of Becker to show that the ankle part makes up both the exterior and interior surface of the knitted component. As depicted in annotated Figure 1 below, the ankle part of the upper forms the exterior surface of the shoe at the top of the upper.



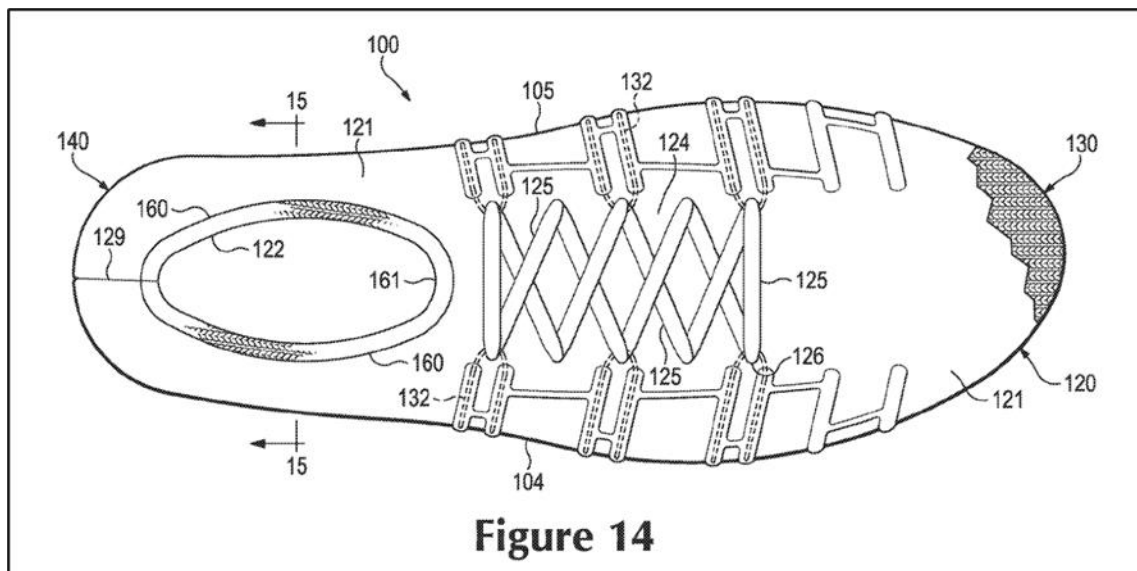
Id., Fig. 1 (annotated).

133. A POSA would have understood that because the shoe disclosed in Becker does not have an outer lining (or skin layer) that covers the ankle part, the ankle part of the inner liner makes up both the interior surface and portions of the exterior surface of the upper.

134. As a result, claim 13 would have been obvious in light of Becker in combination with Dojan.

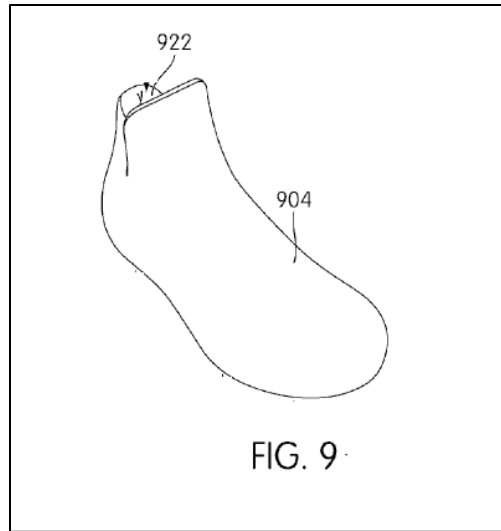
D. Claim 14 is obvious in light of Becker in combination with Dojan

135. Dependent claim 14 depends from claim 11 and recites: “wherein the ankle part of the knitted component has a continuous structure for extending entirely around the ankle of the wearer.” The ’932 patent figures present embodiments with two ankle configurations. The configuration shown in Figure 3 is made up of separate pieces that overlap to create the ankle opening, whereas the configuration in Figure 14 is made up of a single piece of fabric that forms the ankle opening. Regarding Figure 14, the ’932 patent explains that “[a]lthough seam 129 may be present in ankle cuff 160, the ankle part of knitted component 130 has a continuous structure for extending entirely around the ankle of the wearer.” EX1001, 14:55-57. The ’932 patent further explains that the continuous opening does not need to be circular, but includes any shape that is continuous and can receive a foot. *Id.*, 14:58-61.



136. A POSA would have understood that the “continuous structure for extending entirely around the ankle of the wearer” described in claim 14 to be directed to an ankle cuff wherein a single piece of fabric forms the ankle opening, as shown in Figure 14.

137. A POSA would have understood from the disclosure in Becker—in particular, the “sock-like bootie” embodiment shown in Figure 9—that the ankle part is a continuous structure that wraps around the entire ankle. A POSA would have understood that a “sock-like bootie” covers the ankle similar to a traditional sock. For example, a wearer of the shoe would put her foot into the opening of the inner lining denoted by 922 and the inner lining would cover her foot and ankle similar to a sock. A POSA would recognize that the sock-like bootie in Fig. 9 does not have a tongue, and while having seams, includes an opening that extends continuously around the ankle of the wearer.



138. A POSA would understand this to be consistent with how the '932 patent describes the “ankle cuff configuration.” EX1001, 14:25-15:50.

139. This is consistent with what a POSA would have understood to be the benefits of an inner lining that extends continuously around the ankle of the wearer. In particular, when considering all the factors that go into the design of a shoe, a shoe that has fewer seams will generally be more comfortable, provide a good fit for the wearer, and requires less manufacturing work. A POSA would have therefore accounted for these considerations, *see e.g. id.*, [0080], and sought to design a continuous structure that would extend around the ankle of the wearer.

140. As a result, claim 14 would have been obvious in light of Becker in combination with Dojan.

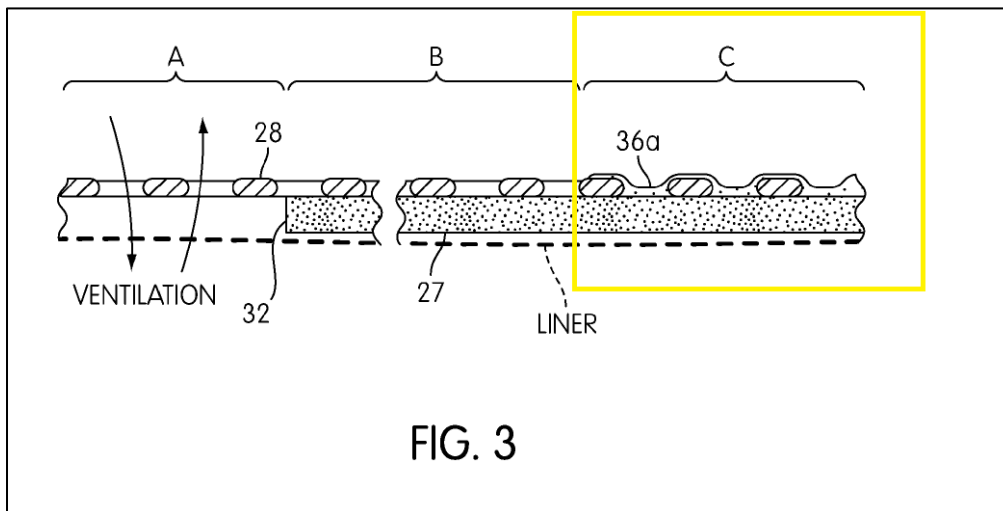
E. Claim 15 is obvious in light of Becker in combination with Dojan

141. Dependent claim 15 requires that “the foot part of the knitted component defines a plurality of protruding areas that extend outward and away from a void within the upper for receiving the foot of the wearer.” The ’932 patent describes that “[s]kin layer 140 extends over protruding areas 133 and may be secured to protruding areas 133, as well as other areas of knitted component 130. As such, skin layer 140 forms corresponding bulges, protrusions, bumps, or other outwardly extending portions at the locations of protruding areas 133 and on exterior surface 121.” EX1001, 10:10-15.

142. Dojan describes an article of footwear that comprises a “mesh material of layer 28” made of “a single layer warped knit.” EX1010, [0042]. Dojan explains that different types of mesh can be used, and that a mesh made of lighter material with larger openings would increase ventilation. *Id.*, [0070]. The use of mesh material was known in the art to “enhance the air-permeability” of an upper. EX1032, [0060].

143. Dojan explains that “the layer of skin material conforms to the mesh material of layer 28 so as to reveal a surface texture having a contour corresponding to that of the mesh material.” EX1010, [0024]. Dojan depicts such contours in the highlighted section of Figure 3 (shown below). The highlighted part of Figure 3 shows an upper after thermal bonding wherein the mesh portions are protruding

away from the inner liner of the shoe and outward away from the foot of the wearer. Dojan specifically discloses that “[i]n much of the areas covered by skin layer panels, . . . the pattern of the underlying mesh material is still visible because of the skin layer conformance to that mesh.” EX1010, [0032].



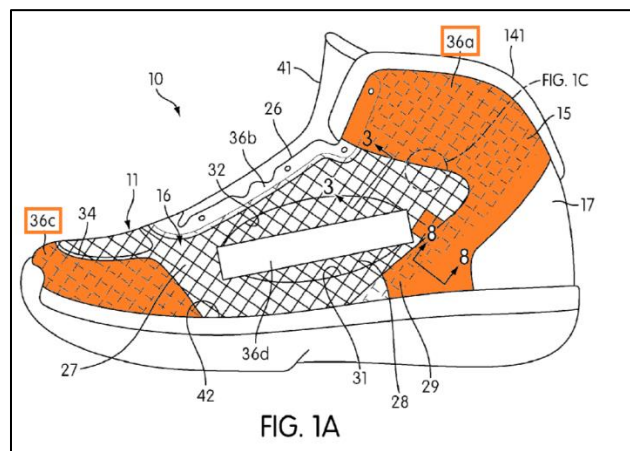
Id., Fig. 3 (annotated); [0038] (“As also seen in region C [of Figure 3], the skin material of panel 36a conforms to the mesh material of layer 28 so that a contour of the mesh material pattern is revealed through panel 36a.”).

144. A POSA would have been motivated to maximize the performance of the shoe described in Becker, which would include ensuring that the shoe had enough ventilation to prevent moisture accumulation around the wearer’s foot. A POSA would have understood that a mesh knit fabric, like that disclosed in Dojan, would allow for increased ventilation because of the gaps present in the knitted pattern of a mesh. A POSA, therefore, would have been motivated to use a mesh like that in Dojan to increase the ventilation and comfort of the shoe.

145. A POSA would have been further motivated to thermally bond the skin layer to the mesh such that it takes on the texture of the mesh, as disclosed in Dojan. Dojan explains that allowing the skin to take on the texture of the mesh beneficially allows “a potential purchaser of [the] shoe [to be] made aware of the structure of shoe [].” EX1010, [0038]. A POSA would have understood that the purchaser’s understanding of the structure of the shoe would bolster confidence in the construction and performance of the shoe which would be beneficial for sales. Dojan further explains that the “conformal nature of the contact between a skin material panel and underlying mesh and substrate layer materials helps to increase the bonded surface areas and overall material strength.” EX1010, [0038]; *see also* EX1005, ¶ 37. A POSA would have understood that increasing the material strength would improve both the performance and the longevity of the shoe. Based on these advantages, a POSA would have been motivated to design the shoe in Becker to use a mesh layer as the knitted component and apply the skin layer with thermal bonding such that the skin layer conforms to the texture of the mesh. A POSA would have had a reasonable expectation of success making a shoe with a mesh and skin layer in light of Dojan’s disclosure.

146. The resulting upper would necessarily include the protruding areas like those disclosed in Dojan. As shown in Fig. 3 (above) and Fig. 1A (below), the exterior of the shoe would include areas that protrude away from the foot of the

wearer, i.e., are raised along the surface of the shoe. EX1010, [0026] (“The skin material of panels 36b and 36c similarly conforms to the mesh material of layer 28 so as to reveal a surface texture corresponding to the mesh.”); *see also id.*, [0038] (“As also seen in region C [of Figure 3], the skin material of panel 36a conforms to the mesh material of layer 28 so that a contour of the mesh material pattern is revealed through panel 36a.”).



147. As a result, claim 15 would have been obvious in light of Becker in combination with Dojan.

X. GROUND 2: CLAIMS 11-14 ARE OBVIOUS IN LIGHT OF BECKER IN COMBINATION WITH WILDEMAN

148. As explained above, Becker describes a shoe with an upper component comprising a knitted inner lining and a protective outer lining as recited in the challenged claims. I understand from Dr. Schut that a POSA would have been motivated to use the thermal bonding methods in Wildeman to attach the outer layer to the knitted inner lining of Becker. EX1005, ¶ 46.

A. Claim 11 is obvious in light of Becker in combination with Wildeman

1. Preamble

149. The preamble of claim 11 is disclosed by Becker for the same reasons as explained above in Section IX.A.1.

2. Limitation 11.a

i. “the upper comprising: a knitted component that includes (a) a foot part for covering at least a portion of a foot of a wearer and”

150. Becker discloses an “upper comprising: a knitted component that includes (a) a foot part for covering at least a portion of a foot of a wearer” for the same reasons as explained above in Section IX.A.2.i.

151. A POSA would have been further motivated to use a knitted fabric for the inner lining based on the disclosures of Wildeman. Wildeman discloses methods of manufacturing shoes with uppers made from a textile material and include a second layer attached to the textile, as in Becker. EX1013, 2:4-6. Wildeman explains that it was well known that athletic footwear is made using textile materials, which include “knitted constructions.” *Id.*, 1:20-22. Wildeman also explains that the base textile 32 of the claimed article of footwear may be made of “a woven fabric [or] a knit fabric.” *Id.*, 5:5-8. Wildeman explicitly notes that its process for attaching layers to uppers can be used with knitted textiles. *Id.* A POSA would have appreciated that Wildeman’s process would provide benefits in the manufacturing

of the uppers, including the reduction of waste through the ability to recycle unused material. *See id.*, 3:21-24. Therefore, a POSA would have been motivated to use a knitted fabric for the inner lining of Becker and would have had a reasonable expectation of success based on the disclosures of Wildeman.

ii. “(b) an ankle part for covering at least a portion of an ankle of the wearer”

152. Becker discloses “(b) an ankle part for covering at least a portion of an ankle of the wearer” for the same reasons as explained above in Section IX.A.2.i.

153. As a result, all elements of limitation 11.a would have been obvious in light of Becker alone or in combination with Wildeman.

3. Limitation 11.b

154. Limitation 11.b is disclosed by Becker for the same reasons as explained above in Section IX.A.3.

155. As a result, all elements of limitation 11.b would have been obvious in light of Becker alone or in combination with Wildeman.

4. Limitation 11.c

156. Limitation 11.c recites “a skin layer that is thermally bonded to the knitted component.”

157. I understand that in the ’932 patent a skin layer “is secured to an exterior of knitted component 130” and “may also be utilized to reinforce areas of upper 120.” EX1001, 5:63-64, 6:18-19. I further understand that in the ’932 patent

“thermally bonded” means “a securing technique between two elements that involves a softening or melting of a thermoplastic polymer material within at least one of the elements such that the materials of the elements are secured to each other when cooled.” *See supra* Section VI.B.

158. As explained above, Becker describes an upper with an outer lining that is attached to the knitted inner lining. *See Supra* Section IX.A.4. As also explained above, a POSA would have known that there were several ways to attach the outer lining to the inner lining as described in Becker. *See Supra* Section IV.B. I understand from Dr. Schut that Wildeman would have provided a POSA with an efficient way to attach an outer lining to a knitted inner lining. EX1005, ¶ 46; EX1013, 2:30-3:2 (explaining that the disclosed methods “permit unused portions of the coated textile to be recycled back into a useable fiber without substantial treatment.”).

159. I understand from Dr. Schut that, given the benefits of thermal bonding described in Wildeman, a POSA would have been motivated to use thermal bonding to attach the outer lining to the inner lining disclosed in Becker with a reasonable expectation of success. EX1005, ¶ 46.

160. As a result, all elements of limitation 11.c would have been obvious in light of Becker and Wildeman.

5. Limitation 11.d

161. Limitation 11.d recites “the skin layer covering at least a portion of the foot part of the knitted component and forming a portion of an exterior surface of the upper, the skin layer being absent from the ankle part of the knitted component.”

162. Limitation 11.d is disclosed by Becker for the same reasons as explained above in Section IX.A.5. As a result, all elements of limitation 11.d would have been obvious in light of Becker in combination with Wildeman.

* * *

163. In light of the above, Claim 11 would have been obvious in light of Becker in combination with Wildeman.

B. Claim 12 is obvious in light of Becker in combination with Wildeman

164. Dependent claim 12 depends from claim 11 and recites: “wherein the foot part of the knitted component is in a foot region of the upper and the ankle part of the knitted component is in an ankle region of the upper, the foot region having less stretch than the ankle region.”

165. Claim 12 would have been obvious in light of Becker and Wildeman for the same reasons as explained above in Section IX.B.

C. Claim 13 is obvious in light of Becker in combination with Wildeman

166. Dependent claim 13 depends from claim 11 and recites: “wherein the ankle part of the knitted component forms (a) another portion of the exterior surface of the upper and (b) a portion of an interior surface of the upper.”

167. Claim 13 would have been obvious in light of Becker and Wildeman for the same reasons as explained above in Section IX.C.

D. Claim 14 is obvious in light of Becker in combination with Wildeman

168. Dependent claim 14 depends from claim 11 and recites: “wherein the ankle part of the knitted component has a continuous structure for extending entirely around the ankle of the wearer.”

169. Claim 14 would have been obvious in light of Becker and Wildeman for the same reasons as explained above in Section IX.D.

XI. GROUND 3: CLAIMS 11-14 ARE OBVIOUS IN LIGHT OF FARYS AND THE KNOWLEDGE OF A POSA

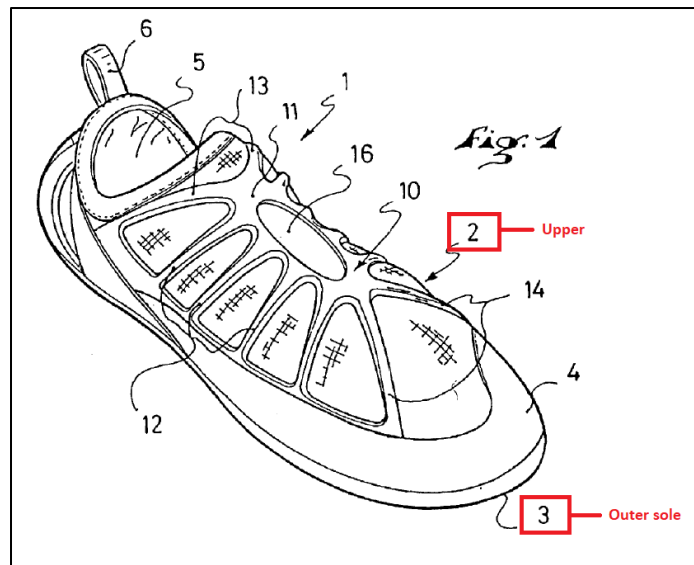
170. Farys discloses a shoe with a mid-high upper that has both a knitted component and an outer lining, referred to as a tightening system. A POSA would have understood that Farys discloses attaching the outer lining (or tightening system) to the knitted component using thermal bonding.

A. Claim 11 is obvious in light of Farys in combination with the knowledge of POSA

1. Preamble

171. The preamble of claim 11 recites “An article of footwear having an upper and a sole structure secured to the upper.”

172. Farys describes a shoe with a sole and an upper. EX1011, Abstract (“An article of footwear including a sole and . . . upper.”). Figure 1 of Farys, annotated below, depicts a shoe with a closed upper and an outer sole. *Id.*, 2:31-34.



Id., Fig. 1 (annotated).

173. As a result, all elements of the preamble are disclosed in Farys.

2. Limitation 11.a

- i. **“the upper comprising: a knitted component that includes (a) a foot part for covering at least a portion of a foot of a wearer and”**

174. Farys discloses a shoe with an “upper” made of lightweight, yet elastic materials that accommodates and wraps around a wearer’s foot. In particular, the upper disclosed in Farys is described as “preferably [being] made of completely elastic yet lightweight material such as LYCRA.” EX1011, 2:39-40. A POSA would have understood that LYCRA is a yarn used for knitting. *See e.g.*, EX1021, 77 (“The yarns used for knitting the fabrics were . . . Lycra 70D. Adding Lycra to a fabric gives it stretch and recovery and these properties are important particularly in active sportswear and outdoor activities where body flexing and stretching occur.”); EX1020, 287 (“Here, Lycra polyester air-covered yarn is knitted into single jersey fabric and their properties have been tested on this knitted structure.”). Therefore a POSA would have understood that the uppers disclosed in Farys would include uppers comprising a “knitted component” made of Lycra.

175. Further, even if Farys’s disclosure did not name Lycra as a preferred embodiment, a POSA would have been motivated to use a knit fabric for the upper of Farys due to the numerous, known advantages of knit materials. *See* Section IV.B; *see also supra* ¶ 40 (The background of the ’932 acknowledges that it was known that materials were selected based upon “various properties, including stretch

resistance, wear-resistance, flexibility, air-permeability, compressibility, and moisture wicking.”). A POSA would have known that knit fabrics have numerous advantages, including excellent moisture and air permeability and attractive appearance, while maintain high stretch and recovery. *See supra* Section IV.A. In addition, knitted fabrics are known to provide more freedom of movement and shape retention for the foot. *See id.*

176. Farys also discloses a shoe with a “closed” upper. EX1011, 2:30-33. Farys describes that the upper is “lightweight and flexible while ensuring a complete hold of the foot[.]” *Id.*, 1:19-22; 1:48-49. A POSA would have understood that a “closed” upper would refer to an upper that covers the foot of the wearer, as shown in, *e.g.*, Fig. 1. A POSA would have further understood that because the shoe had a “complete hold” of the foot, it would necessarily cover at least a portion of wearer’s foot. Such an understanding follows the ’932 patent’s description, which explains the upper “forms a void on the interior of the footwear for comfortably and securely receiving a foot.” EX1001, 1:21-23 .

177. Therefore, Farys discloses, or in combination with the knowledge of a POSA, renders obvious, an upper with a knitted component that covers at least a portion of a foot of the wearer.

ii. “(b) an ankle part for covering at least a portion of an ankle of the wearer”

178. Farys discloses that “the upper [] could also be mid-high, i.e., covering the malleoli without nevertheless hindering the mobility of the ankle.” EX1011, 2:34-39. As explained by the ’932 patent, the “malleoli” are the bony protrusions on either side of a person’s ankle. EX1001, 14:37-39; *see also* EX1016, 29. Therefore, a POSA would have understood the “mid-high” embodiment of Farys to cover a portion of the ankle of the wearer.

179. As a result, all elements of limitation 11.a are disclosed in Farys, or would have been obvious in light of Farys in combination with the knowledge of a POSA.

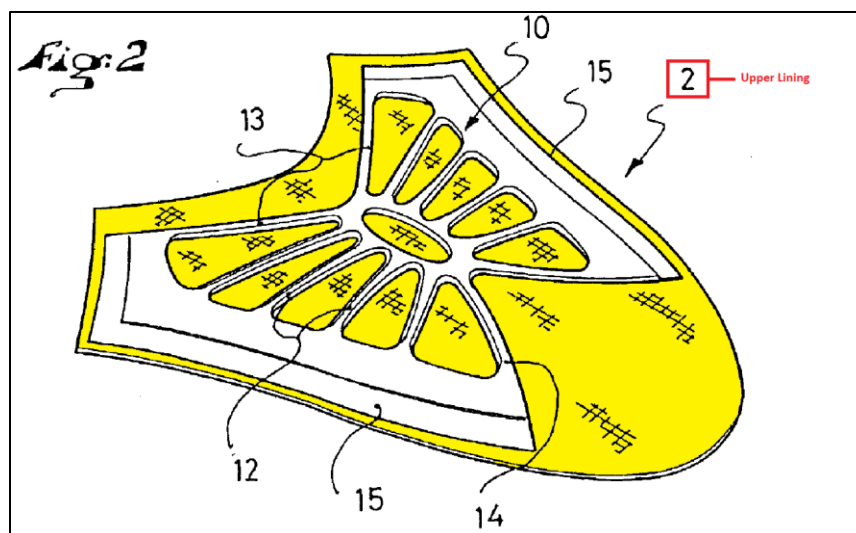
3. Limitation 11.b

180. Limitation 11.b requires that “the foot part and the ankle part being formed of unitary knit construction.” As explained above, I understand that in the ’932 patent a “unitary knit construction” is construed to mean “formed as a one-piece element through a knitting process.” *See supra* Section VI.A.

181. For the reasons described above (*see supra* Section XI.A.2), a POSA would have understood that Farys discloses a “mid-high” upper, which would include both a foot and an ankle part. As explained above, Farys discloses that the upper is “made of a completely elastic yet lightweight material” such as LYCRA and a POSA would have understood that LYCRA is a yarn used to make knitted

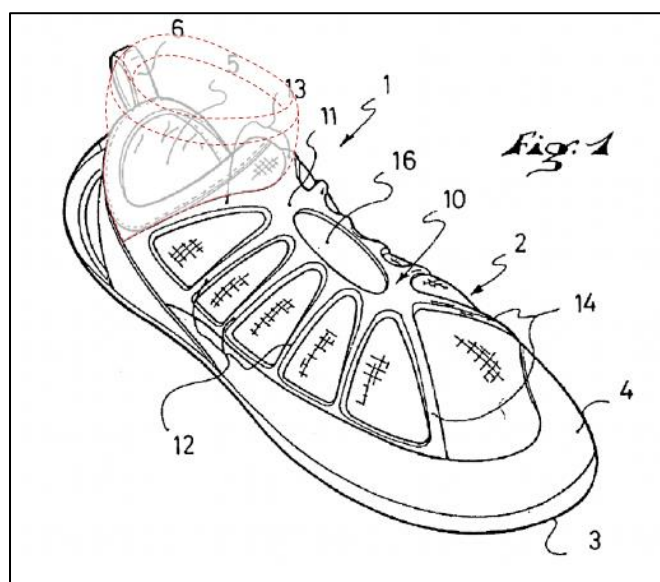
textiles. *See supra* ¶¶ 174-175. Thus, as explained above, a POSA would have understood that the upper disclosed by Farys includes a knitted component and the POSA would have been specifically motivated to use a knitted Lycra to make the shoes in Farys. EX1011, 2:39-41; *see supra* ¶¶ 174-175.

182. A POSA would have been further motivated to use a unitary knit construction for the knitted portion of the upper in Farys. Farys contemplates an upper made from a unitary knit construction, as shown in Figure 2, reproduced below. Farys discloses that the disclosed shoe is made by affixing an outer lining “to a precut form of the upper.” Figure 2, annotated below, depicts the “precut form of the upper” (highlighted in yellow) as one sheet, preferably made from LYCRA. EX1011, 2:39-40; 3:16-23. A POSA would have understood that a “precut form” of a LYCRA fabric would be made of a unitary construction because knitted fabrics are most efficiently made as a single piece of textile that are constructed of strands of yarn are looped together to form a textile. *See supra* ¶ 108. As explained above, a POSA would also have been motivated to use a unitary construction because knitted components are most efficiently made as a single piece of textile. *See id.* A POSA would have also known that a unitary knit lining would provide increased comfort to the wearer due to fewer seams near the foot. *See id.*



EX1011, Fig. 2 (annotated).

183. Accordingly, a POSA would have understood that Farys's mid-high upper would be constructed in the same manner as depicted in Figure 1—as a single piece of knitted fabric—except for additional material in the portion that would cover the wearer's ankle.



Id., Fig. 1 (modified).

184. As a result, all elements of limitation 11.b would have been obvious in light of Farys and the knowledge of a POSA.

4. Limitation 11.c

185. Limitation 11.c recites “a skin layer that is thermally bonded to the knitted component.”

186. As explained above, that the '932 patent explains that the skin layer in the '932 patent “is secured to an exterior of knitted component 130” and “may also be utilized to reinforce areas of upper 120.” EX1001, 5:63-64, 6:18-19. The '932 patent also explains that the skin layer need not cover the entire exterior of the upper, providing that “[e]ach section of skin layer 140 may have different properties . . . [and] may be spaced from each other to expose a portion of the knitted component 130.” *Id.*, 18:13-14, 18:20-21. I further understand that in the '932 patent “thermally bonded” means “a securing technique between two elements that involves a softening or melting of a thermoplastic polymer material within at least one of the elements such that the materials of the elements are secured to each other when cooled,” which is supported by the '932 patent. *See supra* Section VI.B.

187. Farys discloses an elastic tightening system that is attached directly to the upper. In particular, Farys discloses “a preferred manufacturing method in which the elastic tightening system [] is affixed flat to a precut form of the upper [].” EX1011, 3:17-19. A POSA would have understood that the elastic tightening system

of Farys would serve as a skin layer of the '932 patent. For example, the tightening system functions as a skin as it “assumes the shape of the foot [and] is important for a good feel, contact, and maximum perceptions, i.e., sensory feed-back regardless of the type of sport practiced.” *Id.*, 1:28-31. Further, much like the skin layer of the '932 patent, the elastic tightening system is secured to the knitted portion of the upper. *Compare* EX1001, 5:63-66 *with* EX1011, 3:17-19. In addition, the elastic tightening system can be used to “take into account the morphological differences, particularly of high or low insteps, of difference users’ feet,” similar to the skin layer disclosed in the '932 patent. *Compare* EX1011, 3:38-41 *with* EX1001, 6:25-26.

188. Farys discloses several methods of affixing the layers, including the use of “high frequency sealing.” EX1011, 3:24-27. I understand from Dr. Schut that a POSA would have understood that the “high frequency sealing” disclosed in Farys is a form of thermal bonding, as claimed in the '932 patent, that was typically used in shoemaking. EX1005, ¶¶ 48-49. I further understand from Dr. Schut that a POSA would have been motivated to use the high frequency sealing disclosed by Farys to attached the outer lining to the inner lining because of the ease and diminished health and environmental concerns. EX1005, ¶¶ 48-49; *see also* Section IX.A.4; Section X.A.4.

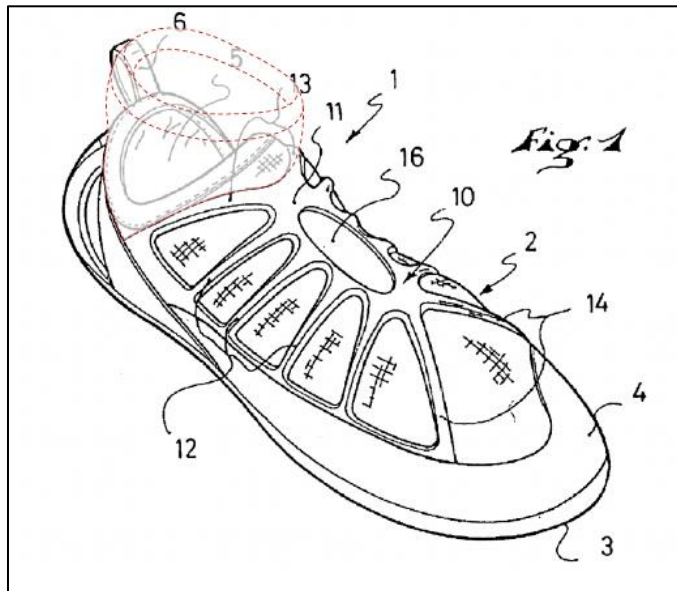
189. As a result, all elements of limitation 11.c would have been obvious in light of Farys alone or in combination with the knowledge of a POSA.

5. Limitation 11.d

190. Limitation 11.d requires “the skin layer covering at least a portion of the foot part of the knitted component and forming a portion of an exterior surface of the upper, the skin layer being absent from the ankle part of the knitted component.” As discussed above, the ’932 patent describes that the skin layer need not cover the entirety of the upper. *See supra* ¶ 186.

191. Farys discloses a tightening system “that extends almost over the entire volume of the foot.” EX1011, 1:56-59. A POSA would have understood that the tightening system is affixed to the exterior of the upper, as seen in Figure 1 below, and therefore necessarily forms at least portions of the exterior surface of the upper.

192. Farys discloses that the mid-high upper embodiment would cover the malleoli, or ankle bone, without “hindering the mobility of the ankle.” *Id.*, 2:34-39.



Id., Fig. 1 (modified).

193. A POSA would have understood that one way of ensuring that the mobility of the ankle is not hindered is to keep the tightening system (or skin layer) away from the ankle part. A POSA would have been aware that the tightening system is used to secure the shoe to the wearer and therefore would restrict movement to some degree. A POSA would, therefore, have been motivated to keep the tightening system away from the ankle part to allow the ankle part to retain all the stretch and mobility of the knitted component and not “hinder[] the mobility of the ankle.” EX1011, 2:34-39. Moreover, a POSA would have been aware of shoe designs wherein the outer linings do not cover the entire inner lining and provide an inner component that extended above the outer lining allowing for greater mobility. *See e.g.*, EX1012, 1:51-53 (Figure 5 discloses removing an outer lining such that the sock-like liner extends up and above the outer covering).

194. As a result, all elements of limitation 11.d would have been obvious in light of Farys and the knowledge of a POSA.

195. Taken together, all elements of Claim 11 would have been obvious in light of Farys in combination with the knowledge of a POSA for the reasons discussed above.

B. Claim 12 is obvious in light of Farys in combination with the knowledge of POSA

196. Dependent claim 12 depends from claim 11 and recites: “wherein the foot part of the knitted component is in a foot region of the upper and the ankle part

of the knitted component is in an ankle region of the upper, the foot region having less stretch than the ankle region.” The ’932 patent provides that, “the presence of . . . skin layer 140 in foot region 106 may limit stretch in foot region 106.” EX1001, 15:12-14. The disclosed skin layer is “secured throughout knitted component 130” and may “cover[] substantially all of knitted component 130,” but that it need not cover the entire exterior of the upper. *Id.*, 9:36-38, 18:13-14, 18:20-21.

197. A POSA would have understood that the upper described in Farys would have a foot region with less stretch than the ankle region. Farys discloses an elastic tightening system in the foot region, thereby limiting the stretch of the foot region. EX1011, 1:56-59. Farys also explains that the elastic tightening system “extends almost over the entire volume of the foot.” *Id.* As described above, a POSA would have been motivated to make the upper described in Farys such that the foot region is covered by the tightening system, but that the ankle region is not. *See* XI.A.5. In particular, as shown in Figure 2 of Farys, the outer lining covers the foot portion of the shoe. Farys discloses using “high-frequency sealing” to attach the tightening system and that this tightening system allows “a tightening and an improved hold of the foot.” EX1011, 1:48-50, 3:25-26. This additional support and hold on the foot would require the portions with the tightening system attached to be able to apply pressure or compression to the wearer’s foot. That is, the portions with the tightening system would not be able to stretch freely, but instead would need to

have some rigidity in order to function as a tightening system. Therefore, the tightening system would necessarily reduce the stretch of the knitted inner lining.

198. As described above, a POSA would have understood that the tightening system of Farys would not be applied to the ankle portion. This is confirmed by Farys' teaching of the importance of "covering the malleoli without nevertheless hindering the mobility of the ankle." EX1011, 2:34-38. In order to allow of maximum flexibility in the ankle, a POSA would have been motivated to exclude the tightening system from the ankle portion and would have had a reasonable expectation of success. *See supra* Section XI.A.5. A POSA would, therefore, have understood that the ankle region without the tightening system would have more stretch than the foot region with the tightening system attached.

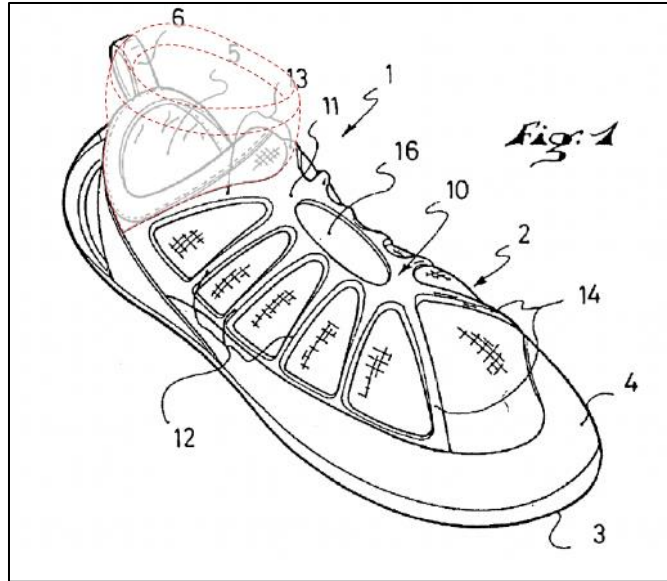
199. As a result, all elements of claim 12 would have been obvious in light of Farys and the knowledge of a POSA.

C. Claim 13 is obvious in light of Farys in combination with the knowledge of POSA

200. Dependent claim 13 depends from claim 11 and recites: "wherein the ankle part of the knitted component forms (a) another portion of the exterior surface of the upper and (b) a portion of an interior surface of the upper."

201. As explained above, a POSA would have been motivated to exclude a tightening system from covering the ankle part of the upper, as suggested by Farys. Without the tightening system covering the textile of the upper, therefore, the ankle

part of the knitted upper would make up both a portion of the exterior surface and the interior surface of the upper. A POSA would have understood that particularly the “mid-high” upper would be structured in a similar fashion as Figure 1 and would include additional knitted material that extended up around the ankle and would not include the tightening system to allow for mobility of the ankle. EX1011, 2:36-39 (the mid-high upper “cover[s] the malleoli without nevertheless hindering the mobility of the ankle” and therefore would not include the tightening system at the ankle portion); *see supra* Sections XI.A.2.ii, XI.A.5. This embodiment is shown below in modified Figure 1. A POSA would have understood this to mean that the mid-high upper embodiment has the LYCRA knitted component extend up the ankle and that the knitted component forms both the interior and exterior of the ankle part. This can be seen in modified Figure 1 wherein the modified ankle—which is shown by the red dotted lines—makes up both the interior surface (contacting the wearer) and the exterior surface (on the outside of the shoe). Further, Farys does not describe other layers of material either on the exterior or interior of the inner lining.



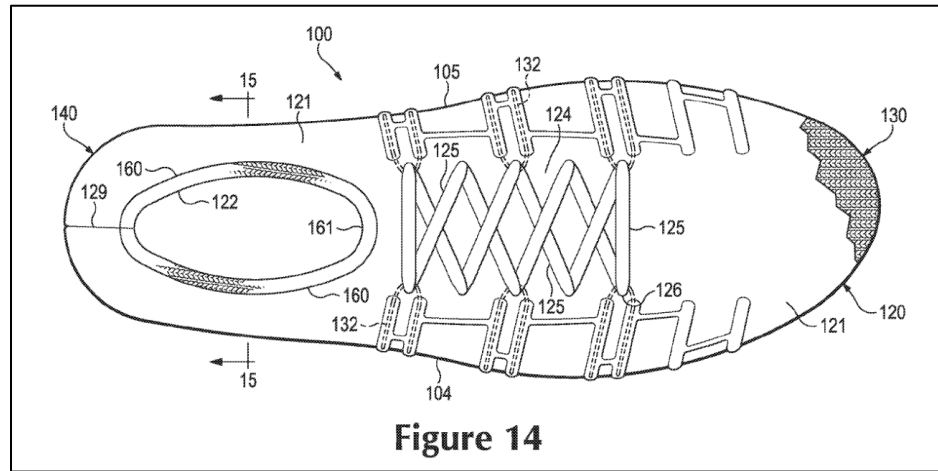
EX1011, Fig. 1 (modified).

202. As a result, all elements of claim 13 would have been obvious in light of Farys and the knowledge of a POSA.

D. Claim 14 is obvious in light of Farys in combination with the knowledge of POSA

203. Dependent claim 14 depends from claim 11 and recites: “wherein the ankle part of the knitted component has a continuous structure for extending entirely around the ankle of the wearer.” As discussed previously, the ’932 patent figures present embodiments with two ankle configurations. *See supra* Section IX.D. The configuration shown in Figure 3 is made up of separate pieces that overlap to create the ankle opening, whereas the configuration in Figure 14 is made up of a single piece of fabric that forms the ankle opening. EX1001, Fig. 3. Regarding Figure 14, the ’932 patent explains that “[a]lthough seam 129 may be present in ankle cuff 160,

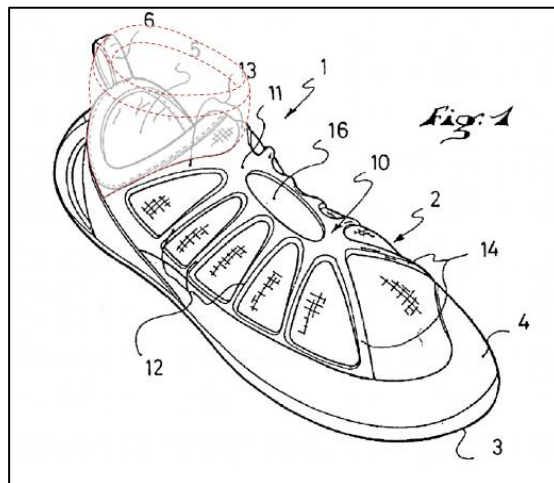
the ankle part of knitted component 130 has a continuous structure for extending entirely around the ankle of the wearer.” *Id.*, 14:55-57.



204. A POSA would have understood that the “continuous structure for extending entirely around the ankle of the wearer” described in claim 14 to be directed to an ankle cuff wherein a single piece of fabric forms the ankle opening, as shown in Figure 14.

205. A POSA would have understood that the knitted upper of Farys (which is preferably made of LYCRA) would extend continuously around the wearer’s ankle. *See supra* Sections XI.A.2, XI.D. As shown in modified Fig. 1 (below), the portion of the upper that encircles the ankle is a continuous structure. A POSA would have understood that Farys’ “mid-high” upper would extend higher on the wearer’s ankle to cover the malleoli in the same manner as shown in Fig. 2—i.e., as a continuous structure encircling the ankle. A POSA would have understood that

this upper would “extend entirely around the ankle of the wearer,” as claimed in claim 14.



EX1011, Fig. 1 (modified).

206. As a result, all elements of claim 14 would have been obvious in light of Farys and the knowledge of a POSA.

XII. NO SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

207. I am not aware of any secondary considerations of non-obviousness that would support non-obviousness of the '932 patent.

208. Given that the articles of footwear claimed in the '932 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.

XIII. CONCLUSION

209. For the reasons stated above, it is my opinion that claims 11-15 of the '932 patent would have been obvious to a POSA at the relevant time in view of the prior art referenced above.

210. By signing this Declaration, I recognize that it 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.

211. 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: 11.4.2024

By:  .

Ann Williams

MATERIALS CONSIDERED

Books and Manuals:

Clarks Limited, *MANUAL OF SHOEMAKING* (5th ed. 1980)

Youn Hee Jeon, et al., *The Mechanical Properties and Abrasion Behavior of Warp Knitted Fabrics for Footwear*, 4 *FIBERS AND POLYMERS* 4, 151-155 (Dec. 5, 2003)

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Wiah Wardiningsih, *Study of Comfort Properties of Natural and Synthetic Knitted Fabrics in Different Blend Ratios for Winter Active Sportswear* (2009) (Masters thesis, RMIT University, Melbourne)

C. Prakash et al., *Establishing the effect of loop length on dimensional stability of single jersey knitted fabric made from cotton/lycra core spun yarn*, 3 *INDIAN JOURNAL OF SCIENCE AND TECHNOLOGY* 3, 287-289 (March 2010)

Elena Onofrei, *The Properties of Knitted Fabrics for Bio-Functional Textiles*, BUL. INST. POLIT. IAȘI, t. LVI (LX) f.2, (2010)

American & Efird, *Footwear Glossary Shoe Styles*, available at <https://www.amefird.com/wp-content/uploads/2010/01/1Footwear-Glossary-Shoe-Styles-06-13-08.pdf> (2008)

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In the Matter of Certain Knitted Footwear, Investigation No. 337-TA-1289, Updated Joint Claim Construction Chart (ITC, May 24, 2022)

Patents and Prosecution History:

U.S. Patent No. 8,898,932 to Woodman, et al.

Excerpts of Prosecution History for U.S. Patent No. 8,898,932

U.S. Patent Application Publication 2010/0313447 to Becker, et al.

U.S. Patent No. 170,332 to Bibbins

U.S. Patent No. 2,213,545 to Chace, et al.

U.S. Patent Application Publication No. 2011/0088285A1 to Dojan, et al.

U.S. Patent No. 6,862,820 to Farys, et al.

U.S. Patent No. 3,319,360 to Nadler

World Intellectual Property Organization Publication WO 2004/012544 to Wildeman

U.S. Patent No. 2,147,197 to Glidden

U.S. Patent Application Publication 2005/0262739 to McDonald et al.

Declarations:

Declaration of Jaap Schut, Ph.D.