UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SKECHERS U.S.A., INC.
Petitioner

v.

NIKE, INC.,
Patent Owner

Case IPR2025-00144

U.S. Patent No. 9,918,511

DECLARATION OF DR. CHRISTOPHER M. PASTORE ISO NIKE'S PATENT OWNER PRELIMINARY RESPONSE

Skechers U.S.A. v. Nike, Inc.
IPR2025-00144
Patent No. 9,918,511
Ex. 2001

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C. Herbert Does Not Disclose "a flat knit textile element comprising (1) flat knit edges free of surrounding textile structure such that the flat knit edges are not surrounded by textile structure from which the textile element must be removed, at least one flat knit edge being a curved flat knit edge" (Claims 1[a1] and 15[a1]) 34

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I, Christopher M. Pastore, Ph.D., declare as follows:

I. INTRODUCTION

1. I have been retained by the Patent Owner Nike, Inc. ("Nike") to provide certain opinions in the *inter partes* review ("IPR") proceeding regarding U.S. Patent No. 9,918,511 ("the '511 Patent"), the Petition for *Inter Partes* Review, and the asserted references.

2. I understand that this proceeding involves Claims 1-20 (the "Challenged Claims") of the '511 Patent. I further understand that Petitioner Skechers U.S.A., Inc. ("Skechers" or "Petitioner") raises two grounds in the Petition for *Inter Partes* Review. I understand that the raised grounds relate to the following references:

Reference	Exhibit
European Patent Application EP 1,338,690 A1 ("Cusinato")	Ex. 1014
U.S. Patent No. 2,440,393 ("Clark")	Ex. 1015
U.S. Patent No. 2,400,692 ("Herbert")	Ex. 1016
U.S. Patent No. 2,147,197 ("Glidden")	Ex. 1017
David J. Spencer, *Knitting Technology: A Comprehensive Handbook and Practical Guide* (Woodhead Pub. Ltd. eds., 3d ed. 2001) ("Spencer")	Ex. 1050

II. QUALIFICATIONS

3. My *curriculum vitae*, attached as Exhibit A, includes my detailed education and employment background, professional experience, and a list of my technical publications and patents. A high-level summary of my relevant experience is provided below.

4. I am currently the Assistant Provost of Faculty Development in Classroom Pedagogy and Nexus Learning, and a Professor of Transdisciplinary Studies at Thomas Jefferson University in Philadelphia, Pennsylvania. I am also an Honorary Research Professor in the Department of Clothing and Textiles at Durban University of Technology in Durban, South Africa.

5. I hold a Ph.D. in Materials Science from Drexel University, where I wrote my thesis: A Processing Science Model for Three Dimensional Braiding.

6. I have written or had my writings included in nearly twenty books relating to textiles. I have nearly fifty refereed publications related to textiles. I have produced ninety presentations and non-refereed publications on textiles and fabrics. I have won numerous awards related to my writings in and experience with textiles.

7. I have worked in textile and materials engineering and textile engineering since 1984. I have a broad range of experience in warp and weft knitting, flat knitting and circular knitting, knitting machines, computer modelling of textile

structures, defects in fabrics, mechanical properties of textiles, 4D textiles, structural and textile composites, and three-dimensional weaving.

8. In forming my opinions, I have relied on my education and experience, as well as the materials described below, and those referenced in the Petition for *Inter Partes* Review.

III. COMPENSATION AND PRIOR TESTIMONY

9. I have previously been qualified as an expert and admitted to testify about textile design, engineering, and manufacturing. Attached as Exhibit B is a list of cases in which I have provided testimony in the last five years. To the best of my knowledge, no court has ever excluded or prohibited me from providing trial testimony as an expert witness.

10. I am being compensated for my time at my standard rate of $300 per hour for my work in this matter. The opinions herein are my own, and I have no interest or stake in the outcome of this proceeding. My compensation does not depend in any way on the outcome of this proceeding or the content of my opinions.

IV. MATERIALS REVIEWED AND CONSIDERED

11. In performing my analysis and preparing this declaration, I reviewed the Petition for *Inter Partes* Review of the ’511 Patent (the “Petition”), certain of the cited exhibits relevant to my analysis, the ’511 Patent and the portions of its

prosecution history relating to the Patent Office's examination of the application, and certain of the references disclosed to and cited by the Patent Office during prosecution, including those listed as exhibits below:

- Petition Exhibits 1001-1002, 1005-1011, portions of Exhibit 1013 (the certified file history of the '511 Patent), 1014-1022, 1050, and 1053; and
- all other materials discussed herein.

12. I reserve the right to amend or supplement the opinions provided in this declaration based on further arguments or evidence presented by Skechers in this proceeding.

V. RELEVANT LEGAL STANDARDS

13. I am not an attorney, but for the purposes of preparing this declaration, I have been informed about certain legal concepts that are relevant to forming my opinions. My understanding of those concepts is provided in this section.

14. I understand that in order for the Board to institute trial in this IPR, Petitioner must show a reasonable likelihood of prevailing as to the unpatentability of at least one Challenged Claim.

15. I also understand that a patent claim may be invalid if it would have been obvious to a POSITA at the time the application was filed. I understand this

means that all the elements of the patent claim must be found in the teachings of one or more references, and that there must have been a rationale for a POSITA to combine and/or modify the teachings of the references at the time of invention to arrive at the claimed invention, along with a reasonable expectation of success in doing so. I understand that a proper analysis of whether a patent claim is obvious includes consideration of the scope and content of the prior art, the differences between the patent claims at issue and the prior art, the level of ordinary skill in the field of the invention at the time of the invention, and other objective considerations. I also understand that in considering obviousness, it is important not to rely on the benefit of hindsight derived from the patent being considered.

16. I understand that in evaluating whether a patent claim would have been obvious, it is appropriate to consider, among other factors:

- whether the teachings of the prior art references disclose known concepts that may be combined in familiar ways, and that when combined, would yield predictable results;
- whether substituting one known element for another would yield predictable results;
- whether applying a known technique would improve similar devices in the same way;

- whether the claimed elements represent one of a limited number of known design choices, which would have a reasonable expectation of success to a POSITA;
- whether known work in one field would prompt variations of the same work in others, leading to predictable results;
- whether there is some teaching, suggestion, or motivation in the prior art references that would have led a POSITA to combine or modify their teachings to arrive at the claimed invention.

17. I understand that in an *inter partes* review, claim terms should be construed "in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." 37 C.F.R. § 42.100(b). I understand that the ordinary and customary meaning is determined primarily in view of the claims, the patent's specification, and its prosecution history, and that the opinions of persons of ordinary skill in the art ("POSITA") as to the ordinary and customary meaning of terms may also be taken into account.

VI. OVERVIEW OF THE '511 PATENT

18. The '511 Patent generally relates to an article of footwear with an upper that includes a textile element. Independent Claim 1 of the '511 Patent recites an

upper for an article of footwear comprising a flat knit textile element with multiple flat knit edges free of surrounding textile structure, and knit strips having different properties adjacent to each other along the lateral and/or medial sides of the upper. Ex. 1001 at 12:8-22. Independent Claim 15 recites an article of footwear comprising an upper, comprising a flat knit textile element with multiple flat knit edges free of surrounding textile structure, and knit strips with different properties positioned adjacent to each other along the lateral and/or medial sides of the upper. Ex. 1001, at 13:1-13.

19. All 20 claims of the ’511 Patent recite textile elements that are flat knit. *Id.* at 12:10-14:16. The ’511 Patent further discloses that the textile element may be formed by warp knitting or weft knitting, using a variety of different knitting machines. *Id.* at 7:34-51.

20. The claimed upper and article of footwear may provide distinct benefits over conventional counterparts. For example, the upper in the ’511 Patent can incorporate multiple different textured areas (*e.g.*, a smooth area and a textured area), into a “unitary element of textile,” eliminating the need to stitch, sew, or otherwise join multiple textile elements together. *Id.* at 9:47-57. As another potential benefit, a unitary textile element may include few seams that contact the foot, which enhances comfort for the wearer. *Id.* at 11:14-21. The claimed upper and article of

footwear also strips with different textures formed by varying the type of stitch at each location of the textile element. *Id.* at 9:58-10:4, Fig. 10. The strips provide benefits that include aesthetic decoration, and affecting the stretch properties of the upper, which can enhance the performance of the footwear. *Id.* at 10:4-19.

VII. LEVEL OF ORDINARY SKILL IN THE ART

21. I understand that Skechers asserts a POSITA in the relevant field of the '511 Patent would have had, by March 2004, "at least a few years of experience in knit materials and knitting methods and machines that can be used in making footwear, or a bachelor's degree in textile-related sciences, engineering, or industrial product design, or equivalent academic or work experience, including in the footwear industry." Petition, at 30; Ex. 1002, at ¶78. Skechers' definition also includes that such "person of ordinary skill would have at least a general understanding of general construction processes and materials used in the manufacturing process of fabric-based articles." *Id.* Finally, under Skechers' definition, a "lower educational level" could be counterbalanced by "working experience," and vice versa. *Id.* at 30-31. For purposes of this declaration, I apply Skechers' definition of a POSITA.

22. In view of my experience and qualifications noted above, I would qualify as a POSITA at the time of the invention of the ’511 Patent, under Skechers’ definition.

23. My opinions in this declaration are from the perspective of a POSITA. My opinions reflect how a POSITA would have interpreted the claims, the prior art, and any other available evidence.

24. My opinions are based on generally-accepted methodologies in the textile and knitting communities.

VIII. SUMMARY OF OPINIONS

25. Claim Construction: In my opinion, a POSITA reading the claims in light of the ’511 Patent specification in 2004 would have understood the ordinary and customary meaning of an “article of footwear” to include both an upper and a sole structure, and to exclude hose, hosiery, stockings, socks, and the like. In other words, I agree with Nike’s proposed construction.

26. Ground 1: In my opinion, (1) Cusinato does not disclose the preamble of Claims 1 and 15, under the ordinary and customary meaning of “article of footwear,” and (2) the Petition does not provide a sufficient motivation for combining Cusinato with Clark or Spencer to reach the preambles of Claims 1 and 15.

27. Ground 2: In my opinion, (1) Herbert, Glidden, and Cusinato do not disclose the preambles of Claims 1 and 15, under the ordinary and customary meaning of "article of footwear"; (2) the Petition does not provide a sufficient motivation for combining Cusinato with Herbert or Glidden to reach the preambles of Claims 1 and 15; (3) Herbert does not disclose Claims 1[a1] and 15[a1], which require "a flat knit textile element comprising (1) flat knit edges free of surrounding textile structure . . . at least one flat knit edge being a curved flat knit edge" under either party's construction; and (4) a POSITA would not have been motivated to combine Herbert with Cusinato or Spencer to reach Claims 1[a1] and 15[a1].

IX. CLAIM CONSTRUCTION

28. The Petition discusses the construction of three claim terms, and I understand that two of those constructions are currently disputed. Petition, at 31-36. I further understand from counsel that Nike's arguments in its patent owner preliminary response only implicate the disputed construction for the first claim term, "article of footwear." Thus, while I offer certain opinions below regarding a POSITA's understanding of the other two terms, my opinions primarily focus on the first term. I reserve the right to offer further analyses and opinions on these (and any other) claim terms, as these proceedings progress.

A. "article of footwear"

29. I have been asked to provide my opinion about the ordinary and customary meaning of "article of footwear," which is recited in Claims 1 and 15 of the '511 Patent.

30. I understand that Skechers proposes this term means "any foot covering in the form of shoes, boots, slippers, or hose (*e.g.*, socks) used for utility and/or dress wear. Not necessarily synonymous with shoes, which are simply one category of footwear." Petition, at 31; Ex. 1006, at 7. To support its position, Skechers primarily relies on a dictionary definition of "footwear" from *The Complete Footwear Dictionary*. Petition, at 31; Ex. 1022, at 67. Skechers also argues that the '511 Patent "indicates a sole is optional" in footwear, including because a sentence in the patent's abstract reads that the "footwear may include an upper and a sole structure," and a different patent cited during prosecution described "knitted footwear of all types, e.g. hose…and socks." Petition, at 31-32; Ex. 1001, at Abstract (underlining added).

31. I understand that Nike proposes this term should be construed according to its "ordinary and customary meaning," without necessarily requiring additional or different words. Ex. 1006, at 7. However, I understand that Nike has explained to the court in a related district court case, that "[a] POSITA would readily

ascertain that an 'article of footwear' as used in the ['511 Patent] does not include 'hose' or 'socks.'" Ex. 1007, at 6-7. I further understand that Nike has explained that the specification of the '511 Patent describes an "article of footwear" as including two primary elements: "an upper and a sole structure." *Id.* at 7; Ex. 1001, at 1:39-40.

32. In my opinion, a POSITA reading the claims in light of the '511 Patent specification in 2004 would have understood the ordinary and customary meaning of an "article of footwear" to include both an upper and a sole structure, and to exclude hose, hosiery, stockings, socks, and the like. In other words, I agree with Nike's proposed construction. This is also consistent with my professional understanding of how "article of footwear" is used in the art.

33. First, the '511 Patent specification discusses that "[c]onventional articles of athletic footwear include two primary elements, an upper and a sole structure." *Id.* at 1:39-40. The '511 Patent specification further discloses that "[t]he primary elements of footwear 10 are depicted in FIG. 1 as being a sole structure 20 and an upper 30." *Id.* at 4:63-64. Every figure of the '511 Patent depicts either a shoe that includes an upper and a sole structure (*e.g.*, Figs. 1, 12, 13, 14), or an upper (or a portion of an upper) that is designed to be, or is, incorporated into a shoe (*e.g.*, Figs. 2-11). In addition, the term "upper" takes its meaning from the context of being

one of the primary elements of a shoe—that is, as the '511 Patent describes, an "upper provides a covering for the foot that securely receives and positions the foot with respect to the sole structure." *Id.* at 1:41-43 (underlining added). The "upper and the sole structure operate cooperatively." *Id.* at 1:52-53. In other words, "upper" has a specialized meaning as a component of footwear, and derives that meaning in part from its relationship to the sole structure component.

34. There are also certain features that uppers generally have, which hose, hosiery, stockings, socks, and the like do not have, that contribute to the unique functionalities of shoes for "a wide variety of ambulatory activities, such as walking and running." *Id.* at 1:52-55. For example, an upper "securely receives and positions the foot with respect to the sole structure." *Id.* at 1:41-43. Uppers also tend to incorporate systems to "selectively increase the size of the ankle opening and permit the wearer to modify certain dimensions of the upper," such as a "lacing system." *Id.* at 1:63-66. Uppers also "may include a tongue," to "enhance the comfort of the footwear," and a "heel counter to limit movement of the heel." *Id.* at 1:67-2:3. Each of these features contributes to securing and placing the foot in a position inside the shoe upper, in relation to the sole structure, so that activities benefiting from the use of shoes may be performed. Because hose, hosiery, stockings, socks, and the like do not have a sole structure, they also do not require these features of uppers. I did not

find any indication in the ’511 Patent that hose, hosiery, stockings, socks, and the like are included within the meaning of an “upper” or “footwear.”

35. Second, I do not agree with Skechers’ reading of the patent’s abstract and claims. From my perspective as a POSITA, the abstract does not indicate that a sole is “optional” for footwear, or provide a different definition of “footwear” compared to the meaning described throughout the specification, which as I explained above includes both an upper and a sole structure. Instead, my interpretation of “[t]he footwear may include an upper and a sole structure” is in the context of patent claiming, where I understand that an inventor need not include every element of an invention in a single claim, and may instead place certain elements in dependent claims. My reading is supported by the claims. For example, independent Claim 15 recites an “article of footwear comprising: an upper,” but does not explicitly recite a sole. Dependent Claims 19 and 20, however, explicitly add a “sole structure” element. But this type of patent claiming does not change the meaning of “article of footwear” as understood by a POSITA, just as an independent claim reciting a “car with an engine,” and a dependent claim adding “wheels,” would not change the meaning of a “car” to make wheels optional.

36. Third, I note that Skechers’ construction primarily relies on an extrinsic dictionary definition (*The Complete Footwear Dictionary*), and the description of a

different claimed invention in an unrelated patent from the 1950s ("Doughty") that was cited during prosecution of the '511 Patent. Petition, at 31-32; Ex. 1022, at 67 and 88; Ex. 1053, at 4:55-58. Based on my understanding of the legal standards, I understand that the claims and specification are the most important sources for providing the meaning of claim terms. And I am not aware that *The Complete Footwear Dictionary* or Doughty are known in the art or accepted by POSITAs as providing definitions that apply to an "article of footwear," as it is claimed and described in the '511 Patent.

37. Finally I note that I reviewed Dr. Adanur's declaration, including his section addressing claim construction issues. Ex. 1002, at ¶¶91-92. In my reading, Dr. Adanur does not appear to offer an opinion or take a position as to the meaning of an "article of footwear" from the perspective of a POSITA. Instead, Dr. Adanur states what Skechers' proposed construction is, and explains that his "opinions in this declaration reflect" Skechers' construction. Should Dr. Adanur ever offer an opinion as to the meaning of this term during these proceedings, I reserve all rights to respond at the appropriate time.

38. Given the description provided by the '511 Patent and intrinsic record itself, and my professional experience, in my opinion, a POSITA would have understood the meaning of an "article of footwear" to include both an upper and a

sole structure, and to exclude hose, hosiery, stockings, socks, and the like, consistent with Nike's proposed ordinary and customary meaning.

B. "a flat knit textile element having: (1) flat knit edges free of surrounding textile structure such that the flat knit edges are not surrounded by textile structure from which the textile element must be removed"

39. I understand that Skechers proposes the term means, in part, "a textile element that has only flat knit edges." Petition, at 32 (underlining added); Ex. 1006, at 6. I understand that Nike proposes the term should have its ordinary and customary meaning. Ex. 1006, at 9. I further understand that Nike has explained to the court in the district court case that there is no language in the claim term itself requiring "that the textile element have 'only' flat knit edges." Ex. 1007, at 9-10.

C. "strips"

40. I understand that neither party raised a dispute over the meaning of this term during litigation. However, the Petition now argues that "strips" should be "accorded the same breadth as Patentee contends in the litigation," which the Petition frames as "textured areas having disparate widths, lengths, shapes, orientations, and locations." Petition, at 32-36.

X. OVERVIEW OF ASSERTED PRIOR ART REFERENCES

A. Cusinato

41. European Patent Application EP 1,338,690 A1 ("Cusinato") is titled "Process for making a knitted fabric and its product," and was published on August 27, 2003. Ex. 1014, cover page. Cusinato claims priority to IT VE20020009, which was filed on February 26, 2002. *Id*.

42. Cusinato is directed to making a knitted fabric, and using it to produce a "stocking"—which in this art has a similar meaning to a sock. Ex. 1014, at [0013].

43. Cusinato discloses a piece of knitted fabric in which a left wave and right wave form a "V" shape. The shape is formed by varying the number of stitches in each row. Ex. 1014, at [0014].

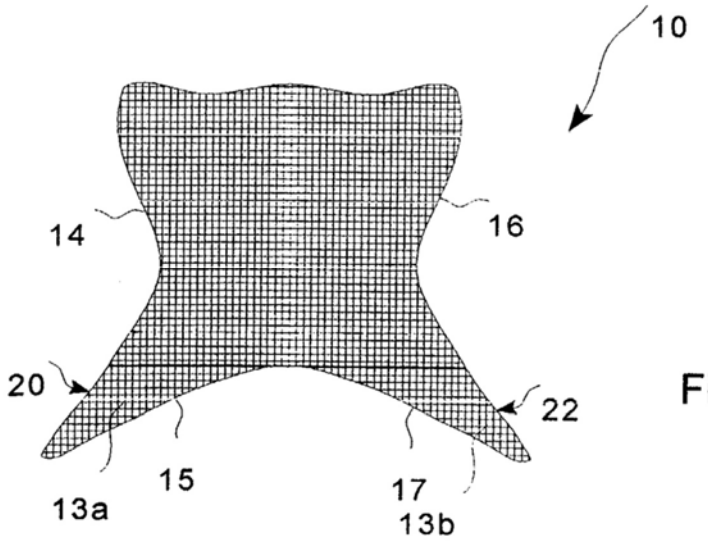


Fig. 3

44. Cusinato discloses that its "aim is to obtain a fabric in one piece" in order to make a "stocking," such that once the fabric "has been folded, it directly forms the stocking." *Id.* at [0013].

B. Clark

45. U.S. Patent No. 2,440,393 ("Clark") issued on April 27, 1948, and is titled "Process of Making Last-Fitting Fabric Uppers." Ex. 1015, at 3.

46. Clark relates to a process for last-fitting a textile upper. Ex. 1015, at 1:1-7. Specifically, Clark describes a process "of making of textile material a last-fitting upper which . . . exactly reproduces the contour of the last upon which it is fashioned and preserves or maintains that contour in wear." *Id.* Clark discloses using thermoplastic yarns distributed throughout a fabric, and then "shrinking" those strands on a last using a heat treatment. *Id.* at 1:18-25. As a result, the "shape of the last is accurately reproduced and permanently retained." *Id.*

47. Clark's knitted fabric is either "knitted as a strip in a flat bed knitting machine and formed into a continuous band by having its ends joined, or it may be knitted as a seamless band in a circular knitting machine."

48. Clark depicts the seamless band in Figure 2, and the complete upper in Figure 4. *Id.* at 1-2.

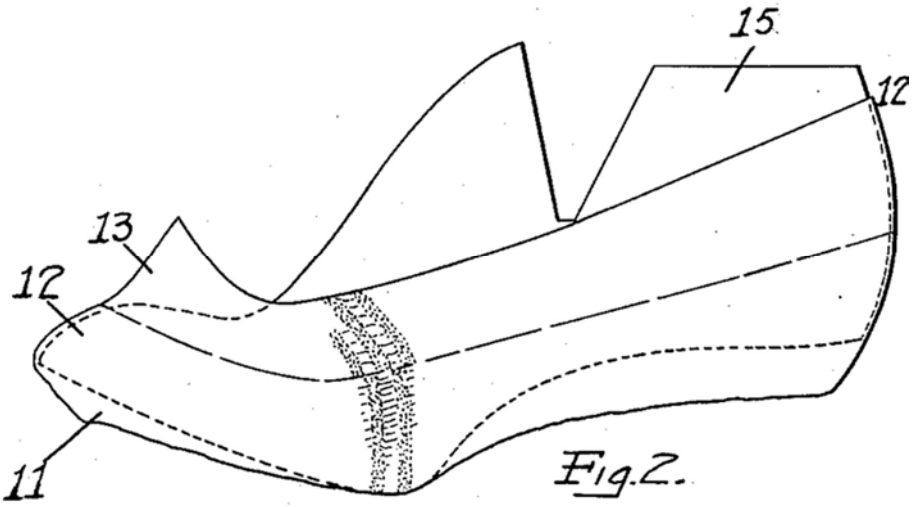


Fig.2.

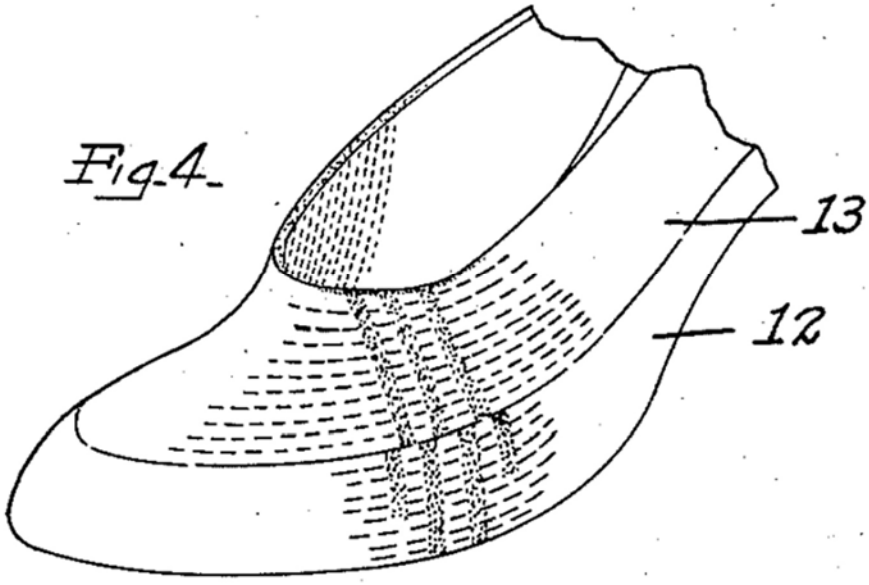


Fig.4.

C. Spencer

49. "Spencer" is a knitting textbook authored by David J. Spencer titled "Knitting Technology: A Comprehensive Handbook And Practical Guide." Ex. 1050. This third edition was published in 2001. *Id.*

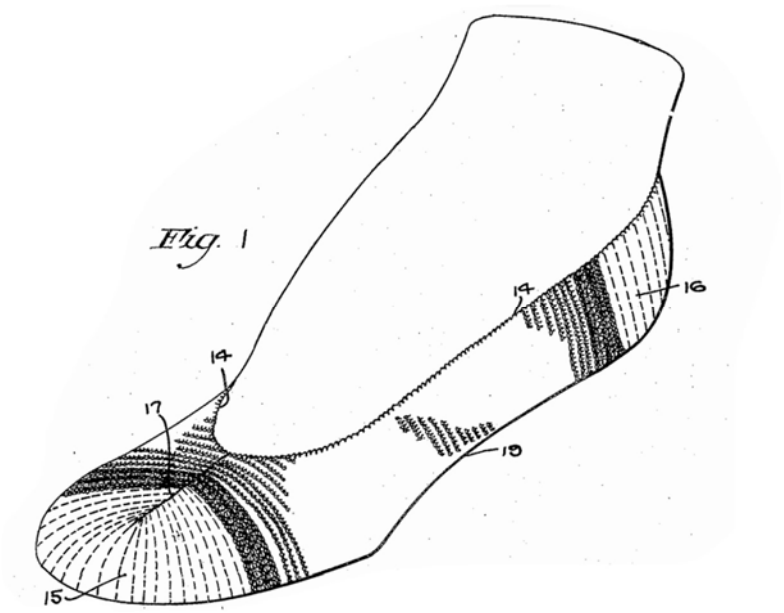
50. Spencer discusses the history of knitting, and general knitting concepts, including for knitting garments such as socks and sweaters, and the associated manufacturing processes for making those garments. *See id.* at 104, 222. Spencer is not directed to teaching knitting or manufacturing concepts for shoes or uppers.

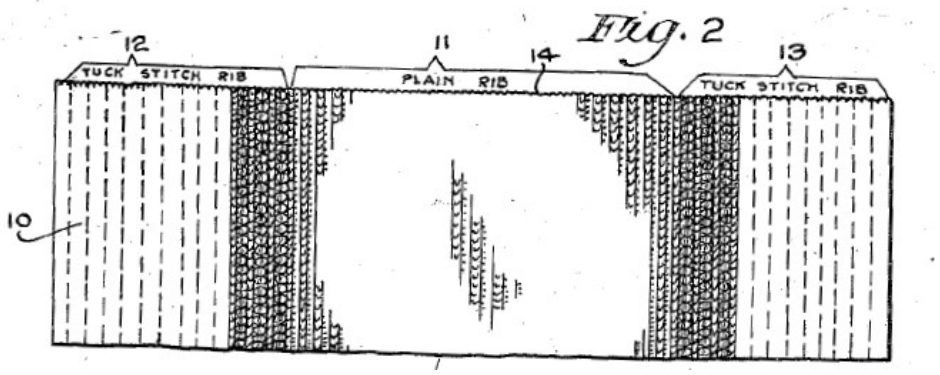
D. Herbert

51. U.S. Patent No. 2,400,692 ("Herbert") is titled "Foot Covering" and issued on May 21, 1946. Ex. 1016. Herbert is directed to a "slipper type of knitted foot covering adapted to be worn inside a low cut ladies' shoe or slipper," which in the context of Herbert's disclosure and this art, is similar to a sock. Ex. 1016, at 1:3-6 (left column).

52. Herbert explains that its "slipper" is of "such height as to be completely concealed from view when worn within an outer pump or other such low-cut shoe." *Id.* at 2:25-29 (right column). The fabric used to make the "slipper" is preferably knit as a "seamless tube," that is, "fabricated of circular knit seamless fabric." *Id.* at 1:11-15, 1:39-47 (both right column). Herbert explains that the "slipper" is produced from the circular knit fabric via "cutting" and "seam[ing]" steps. *Id.* at 2:9-21 (left column). Herbert mentions that it could be possible to produce the "slipper" from "cut and sewn flat rib knitted fabric," which also requires cutting steps, but Herbert does not disclose any details for a flat knit process. *Id.* at 1:5-11 (right column). The

"slipper" is formed from an entirely "rib knitted fabric." *Id.* at 1:9 (left column). Herbert explains that the ribbed fabric may include multiple types of rib stiches, including "plain rib" and "tucked rib" sections. *E.g.*, *id.* at 2:22-27 (left column). Herbert explains that the "tuck stitch" may be used in the "toe and heel portions," so that they "more snugly fit about the toe and heel of the wearer." *Id.* at 2:4-11 (right column). A depiction of the "slipper" on the foot of a wearer is shown in Figure 1, and a depiction of plain and tuck rib stitch sections in the circular knit fabric is shown in Figure 2:





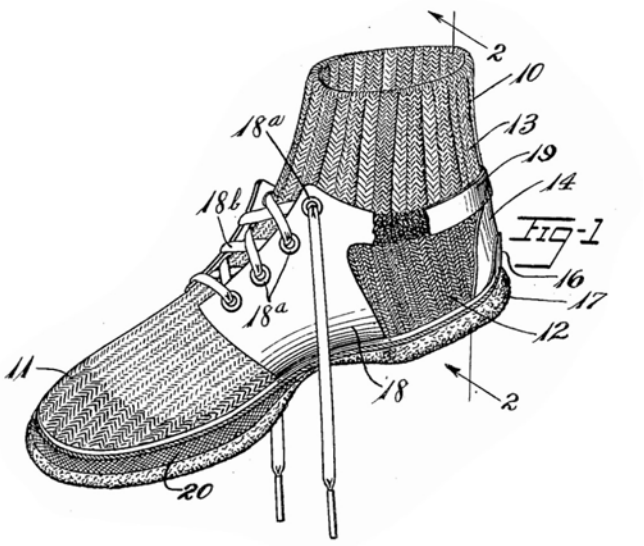
E. Glidden

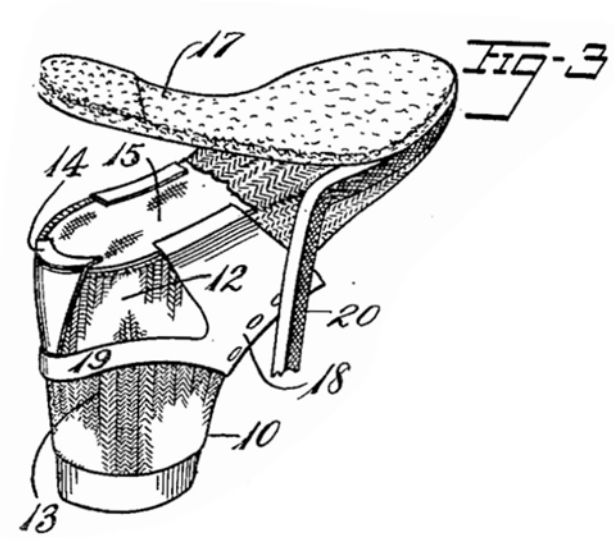
53. U.S. Patent No. 2,147,197 ("Glidden") is titled "Article of Footwear," and issued on February 14, 1939.

54. Glidden is directed to providing "comfort, stretchability, light weight, breathability and absorption properties in an article of footwear." Ex. 1017, at 1:25-28 (left column). Specifically, Glidden's invention consists of "an upper of extensible and elastic textile material" which "form[s] the complete upper including the insole," while a "reinforcing structure . . . is provided on the outer face of the upper . . . while preferably leaving extensive portions of the textile upper exposed to provide breathability and facility of flexing." *Id.* at 3:3-17 (right column).

55. A shoe embodying the invention is shown in Figure 1. In this embodiment, "the entire upper . . . is fabricated as an integral, shaped, sock-like article." *Id.* at 3:45-47 (right column).

56. Glidden also discloses adding "parts, preferably of rubber" to the upper, such as a "counter," "heel reinforcement," "outsole," and "integral heel strap," as shown in Figure 3.





XI. Ground 1: Cusinato In View Of Clark And Spencer Does Not Disclose Every Limitation Of The Independent Claims

57. In my opinion, Cusinato fails to disclose at least the preambles of each independent Claim 1 and 15, which recite an "article of footwear,"

58. In addition, in my opinion Skechers and Dr. Adanur did not articulate a sufficient reason to explain why a POSITA would have been motivated to combine the sock-based reference Cusinato with the shoe-based reference Clark.

A. Cusinato Does Not Disclose An "upper for an article of footwear" (Claim 1[preamble]) or an "article of footwear comprising: an upper" (Claim 15[preamble])

59. In my opinion, Cusinato does not disclose an "upper for an article of footwear" or an "article of footwear comprising: an upper," under the ordinary and customary meaning of "article of footwear." As discussed above, a POSITA would understand an "article of footwear" in both independent claims to mean a shoe, or in other words, both an upper and a sole structure, and to exclude hose, hosiery, stockings, socks, and the like.

60. Cusinato does not disclose a shoe, or an upper, or an upper with a sole structure. Instead, Cusinato only discloses a "stocking," which "is directly obtained by wrapping the fabric in a boot-like manner and carrying out a simple sewing in order to join the two side edges." Ex. 1014, at [0015]. In the Petition, Skechers refers to the "boot-like shape" of Cusinato's "stocking," and cites Cusinato's use of the

word "footwear." Petition, at 51. Dr. Adanur cites the same language in Cusinato, although I note that he does not provide any opinions as to the meaning of that language, from the perspective of a POSITA. Ex. 1002, at ¶158. In my opinion, Cusinato's reference to a "boot-like shape" would be understood exactly as the plain words read—it refers to the shape that the "stocking" takes, as it is wrapped around the form of a foot, but does not disclose a "boot" (*i.e.*, a type of shoe). This is further evident from the fact that Cusinato does not mention a sole structure (which a "boot" has), or any other components that would be necessary to produce a "boot."

61. Similarly, in the context of Cusinato, it is clear that its references to "footwear" do not mean an "article of footwear" that includes an upper and a sole structure, as it is used in the '511 Patent. This is evident from the fact that Cusinato never refers to a sole or a sole structure, and exclusively refers to "stocking or footwear," in the context of a garment-like article (not a shoe). For example, Cusinato explains that its disclosed process also "may be used in order to manufacture other clothing articles," and "orthopaedic and medical-sanitary articles which cover different parts of the body, such as elbows and shoulders." Ex. 1014, at [0038]. The commonality between all of these items is that they are all knit items, none of which have sole structures. And in this list of other items, Cusinato does not disclose that its "stocking or footwear" could be used for a shoe, or an upper with a

sole structure, further indicating that Cusinato does not disclose an "article of footwear" from the perspective of a POSITA. Because Cusinato only discloses a stocking, in my opinion it fails to disclose the preamble of Claims 1 and 15.

B. The Petition Does Not Provide A Sufficient Motivation For Combining Cusinato With Clark to Reach Claims 1[preamble] and 15[preamble]

62. I understand that Skechers also asserts that if neither Cusinato nor Clark discloses an "article of footwear," under Nike's construction where it includes a "sole" structure, then the references could be combined to meet the preamble limitations of Claims 1 and 15. Petition, at 51. Specifically, Skechers asserts that "a sole is disclosed in Clark, and a POSITA would consider it obvious to add a sole to Cusinato's 'boot-like' form." *Id.*

63. I understand that in order to establish obviousness, Skechers must provide a rationale sufficient to explain why a POSITA would have combined Cusinato with Clark, and/or would have modified the teachings of the references, in order to arrive at the claimed invention, and demonstrate that a POSITA would have had a reasonable expectation of success in doing so.

64. Skechers says that "a POSITA would consider it obvious to add a sole to Cusinato's 'boot-like' form." Petition, at 51. It cites to Dr. Adanur's accompanying declaration, but does not explain any motivation to combine in the

Petition itself. In the cited paragraphs, Dr. Adanur only provides an opinion on an alleged motivation to combine in ¶160, where he opines "Clark discloses a 'shoe bottom,' and it would be obvious to add a sole to Cusinato's 'boot-like' form to provide cushioning and protection." Ex. 1002, at ¶160.

65. In my opinion, Dr. Adanur does not provide a sufficient motivation to combine from the perspective of a POSITA. On a fundamental level, Dr. Adanur does not explain why a POSITA would have looked to combine the sock reference Cusinato with the Clark reference, which is in the distinct field of shoes. Shoes and socks have a very long history in the relevant art, and each has features that are designed for unique purposes. In my experience, socks, stockings, and slippers are typically designed to be worn either alone (*e.g.*, for comfort indoors), or inside of a shoe. Shoes, on the other hand, are typically designed to be worn outdoors (*e.g.*, for activities such as walking, athletic activities, etc.), or on surfaces where a sock would be inadequate. For that reason, a shoe sole offers benefits that are unique to shoes—including cushioning, support, and traction, as Dr. Adanur points out. But if a person (or POSITA) desires those unique properties, then shoes are readily available. In my experience, a POSITA would not have any reason to attempt to transform a sock, stocking, or slipper into a shoe.

66. Dr. Adanur's opinion is limited to the notion that a POSITA would supposedly be motivated to add a sole to a slipper or stocking, in order to provide the benefits of a shoe's sole—namely, cushioning, support, and traction. But Dr. Adanur cites nothing that discusses the benefits of a sole structure in the context of a shoe. I disagree that a POSITA would have had this motivation, because shoes are in different art than slippers and stockings, and each art has distinct approaches to addressing cushioning, support, and traction. If a POSITA desired to make a shoe with a sole structure to obtain the types of benefits offered by a shoe sole, then there are relevant references in the shoe arts. But there is also a separate art that includes different techniques for affecting the cushioning, support, and traction properties of slippers, stocking, and socks. While wide-ranging, these can include using different materials with desired properties, varying the thickness of the materials, incorporating elastic or other supportive elements, and adding components to bottom portion material to provide traction. In my opinion, Dr. Adanur does not provide a reason why a POSITA in possession of Cusinato would have been motivated to look to Clark for shoe teachings, which does not address cushioning, support, and traction for slippers, stockings, or socks. Similarly, Dr. Adanur does not explain how Clark's teachings for a shoe sole could be combined with slippers or stockings. As I have

discussed, an upper typically has unique properties that allow it to be joined to a sole structure, and slippers and stockings do not have those properties.

67. Cusinato also shows these distinctions between different arts. Cusinato explains that a purpose of its process is to produce a stocking that "is form-fitting to the foot or the leg of a person," which is an approach for providing support in sock art, which is distinct from the type of support offered by a shoe sole. Ex. 1014, at [0018]. This approach is designed to work with slippers, stockings, or socks—not shoes. Dr. Adanur does not explain how the cushioning or support provided by a sole structure would be compatible with a slipper or stocking. Nor does he explain why a POSITA would seek to add the "traction" provided by a shoe sole, to a slipper or stocking. In fact, Dr. Adanur's declaration does not offer any opinion to show how a POSITA would have a reasonable likelihood of success in combining sock references with shoe teachings.

XII. Ground 2: Herbert In View Of Cusinato, Glidden, And Spencer Does Not Disclose Every Limitation Of The Independent Claims

68. In my opinion, the Ground 2 combination fails to disclose the preambles of each independent Claim 1 and 15, which recite "an upper for an article of footwear" and "article of footwear comprising: an upper," respectively. The Ground 2 combination also fails to disclose limitation 1[a1]/15[a1], which recites "flat knit edges free of surrounding textile structure."

69. In addition, in my opinion Skechers and Dr. Adanur did not articulate a sufficient reason to explain why a POSITA would have been motivated to combine the sock-based reference Cusinato with the shoe-based teachings of Glidden or the general knitting reference Spencer.

A. Herbert And Cusinato Do Not Disclose An "upper for an article of footwear" (Claim 1[preamble]) or an "article of footwear comprising: an upper" (Claim 15[preamble])

70. In my opinion, both Herbert and Cusinato do not disclose an "upper for an article of footwear" or an "article of footwear comprising: an upper," under the ordinary and customary meaning of "article of footwear." As discussed in Section XI.A. above, a POSITA would understand an "article of footwear" to mean both an upper and a sole structure, or in other words a shoe, and to exclude hose, hosiery, stockings, socks, and the like.

71. First, Herbert does not disclose an upper with a sole structure, a shoe, or an upper. Instead, Herbert discloses a "slipper," which in the context of the reference and this art is similar (or equivalent) to a sock, because Herbert explains that the "slipper" is "adapted to be worn inside" a "low cut ladies' shoe Ex. 1016, at 1:3-7 (left column). Skechers and Dr. Adanur point to Herbert's description of a "slipper foot covering" (Petition, at 94; Ex. 1002, at ¶268), but as I explained in

Section XI.A. above, a POSITA would not consider a slipper to be an "article of footwear" under the term's ordinary and customary meaning.

72. Skechers and Dr. Adanur also point to Herbert's use of the word "sole" (Petition, at 94; Ex. 1002, at ¶268), but Herbert does not describe a sole ***structure***, and instead only uses the word "sole" in reference to the location of a portion of slipper's knitted fabric, along the "bottom" of the wearer's foot—i.e. the sole of the foot. *E.g.*, Ex. 1016, at 2:12-18 (left column). Thus, the Petition takes Herbert's use of the word "sole" out of context. Rather than using it to describe a structure, Herbert, in every instance, refers to a "sole section" or "sole portion," which again, refers to the portion of the knitted slipper fabric that touches the sole of the wearer's foot. *E.g.*, *id.* at 1:11 (left column), 2:17 (left column). This is further shown by the fact that Herbert describes features of the slipper's "sole section" with respect to knitted fabric, not to a sole structure. For example, Herbert describes that the stitch type may provide "greater elasticity of the rib fabric of the lower sole portion which permits the foot to be fitted without binding discomfort." *Id.* at 2:4:14 (right column). Because Herbert only discloses a slipper, in my opinion it fails to disclose the preamble of Claims 1 and 15.

73. Second, Cusinato also does not disclose an upper with a sole structure, a shoe, or an upper, for the reasons that I discussed above. *See* Section XI.A. As I

explained, Cusinato only discloses a "stocking," which in this art, is similar to a sock. *Id.* Because Cusinato only discloses a stocking, in my opinion it fails to disclose the preamble of Claims 1 and 15.

B. The Petition Does Not Provide A Sufficient Motivation For Combining Cusinato With Herbert Or Glidden To Reach Claims 1[preamble] and 15[preamble]

74. I understand that Skechers also asserts that if neither Herbert nor Cusinato discloses an "article of footwear," under Nike's construction where it includes a "sole" structure, then either reference could be combined with Glidden to meet the preambles of Claims 1 and 15. Petition, at 94–95. Specifically, Skechers asserts that "a POSITA would consider it obvious to add a discrete sole to the 'slipper' in Herbert or the 'boot-like' form in Cusinato." *Id.* at 95. The Petition also states that Glidden depicts an "outsole" in its figures. *Id.* at 94.

75. As I explained in Section XI.B, I understand that in order to establish obviousness, Skechers must provide a rationale sufficient to explain why a POSITA would have combined Glidden with Herbert or Cusinato, and/or would have modified the teachings of the references, in order to arrive at the claimed invention, and demonstrate that a POSITA would have had a reasonable expectation of success in doing so.

76. For these combinations, the Petition states that "a POSITA would consider it obvious to add a discrete sole" to Herbert or Cusinato, but it does not provide any reasoning or explanation. Petition, at 95. Similarly, the Petition cites Dr. Adanur's declaration (*id.*, citing Ex. 1002, at ¶¶268-69), but Dr. Adanur only opines that "it would be obvious to add a discrete sole to Herbert's 'slipper' or Cusinato's 'boot-like' form," again without any reasoning or explanation. Ex. 1002, at ¶269.

77. Based on my review of the materials, neither the Petition nor Dr. Adanur provided any explanation why a POSITA would have been motivated to combine (or modify) Glidden with Herbert or Cusinato. Therefore, under my understanding of the legal standards, the Petition does not provide sufficient support to establish this obviousness ground.

78. Furthermore, the Petition and Dr. Adanur also did not address a reasonable expectation of success, which I understand is also required for obviousness.

79. For these reasons, it is my opinion that the Petition and Dr. Adanur do not show that a POSITA would have been motivated to combine Glidden with Herbert or Cusinato to reach the preambles of Claims 1 and 15, or would have had a reasonable expectation of success in making the combinations.

C. Herbert Does Not Disclose "a flat knit textile element comprising (1) flat knit edges free of surrounding textile structure such that the flat knit edges are not surrounded by textile structure from which the textile element must be removed, at least one flat knit edge being a curved flat knit edge" (Claims 1[a1] and 15[a1])

80. In my opinion, Herbert does not disclose Claims 1[a1] and 15[a1], which require "a flat knit textile element having: (1) flat knit edges free of surrounding textile structure," under either Nike's or Skechers' proposed constructions, which I discussed above. *See* Section IX.B. That is because, whether multiple "flat knit edges" (under Nike's proposal) or "only" "flat knit edges" (under Skechers' proposal) are required, Herbert does not disclose any "flat knit edges free of surrounding textile structure . . . from which the textile element must be removed."

81. As the Petition and Dr. Adanur explain, "[t]wo common machine-knitting techniques are circular knitting and flat knitting." Petition, at 17, citing Ex. 1002, at ¶¶51-53. "Circular knitting produces textiles in a continuous tube, while flat knitting produces textiles in sheets." *Id.* Citing extrinsic references, the Petition and Dr. Adanur also explain that one type of "flat knitting" is "knitting to shape," whereby an article is directly knit into a desired shape such that "cutting steps can be avoided (which eliminates waste, avoids the need to finish cut edges, saves time, saves money, etc."). Petition, at 18.

82. I agree with these general statements distinguishing flat knitting from circular knitting, and describing flat knitting to shape. Another type of flat knitting is sometimes referred to as "cut-and-sew," whereby an article is formed by cutting a piece into the desired shape (or multiple pieces into multiple desired shapes) out of a rectangular sheet of flat knit fabric, and then joining edges and/or multiple pieces together using sewing or other techniques (for example, adhesives). This "cut-and-sew" process is briefly referenced in Herbert, which states that its slipper may be formed from "cut and sewn flat rib knitted fabric." Ex. 1016, at 1:7-9 (right column).

83. In view of the above background, it is my opinion that Herbert does not disclose Claims 1[a1] and 15[a1], under either proposed construction. At a minimum, under Nike's proposal, these limitations require a textile element with multiple "edges" that are (1) "flat knit," and that (2) did not have to be "removed" (i.e., cut) from "surrounding textile structure." Herbert does not disclose any such "flat knit" "edges." First, Herbert only discloses details for "circular knit seamless fabric," which is not flat knit and therefore cannot meet these limitations. *Id.* at 1:11-13 (right column). Second, while Herbert discloses no details for a flat knit process, it briefly references that "cut and sewn flat rib knitted fabric" could be used to make its slipper. *Id.* at 1:7-10 (right column). But "cut and sewn" flat knit fabric requires

cutting, and Herbert does not disclose any "flat knit" "edges" that are "free of surrounding textile structure," such that they did not require cutting.

84. Neither the Skechers nor Dr. Adanur explain how Herbert's brief reference to "cut and sewn flat rib knitted fabric" could disclose these limitations. Petition at 95, citing Ex. 1002, at ¶289.

85. For these reasons, it is my opinion that Herbert does not disclose limitations 1[a1] and 15[a1].

D. A POSITA Would Not Have Been Motivated To Combine Herbert With Cusinato Or Spencer To Reach Claims 1[a1] and 15[a1]

86. I understand that Skechers also asserts that if Herbert does not disclose "a flat knit textile element having: (1) flat knit edges free of surrounding textile structure such that the flat knit edges are not surrounded by textile structure from which the textile element must be removed," then Herbert could be combined with Cusinato or Spencer to meet limitations 1[a1] and 15[a1]. Petition at 95-96.

87. I understand that in order to establish obviousness, Skechers must provide a rationale sufficient to explain why a POSITA would have combined Herbert with Cusinato or Spencer, and/or would have modified the teachings of the references, in order to arrive at the claimed invention, and demonstrate that a POSITA would have had a reasonable expectation of success in doing so.

88. The Petition asserts that Cusinato discloses curved flat knit edges, and that "[a] POSITA would understand that the use of such curved edged structures would be especially useful for footwear, including Herbert and Glidden, which have curved edges." Petition, at 96-97. However, the Petition does not explain why a POSITA would have been motivated to combine Cusinato with the latter references.

89. Meanwhile, Dr. Adanur opines that Herbert and Cusinato "relate to the design and manufacture of footwear using knitting, and flat knitting in particular," and that a POSITA would have been motivated to combine Herbert with Cusinato in light of "Cusinato's teaching of a shaped, flat knit textile element, which could be employed to reduce waste and simplify manufacturing by eliminating cutting steps." Ex. 1002, at ¶147. Dr. Adanur continues by opining that Herbert teaches a "similar goal," by disclosing a "method of making the finished product…simpler and less expensive.'" *Id.* at ¶148, citing Ex. 1016, at 2:14-15.

90. I disagree with Dr. Adanur. First, in my opinion neither Herbert nor Cusinato relates to "the design and manufacture of footwear," under the ordinary and customary meaning of "article of footwear," for the reasons I have already discussed. *See* Section XII.A. But in any case, I also disagree that Herbert "relate[s]" to flat knitting. As I discussed above, Herbert only discloses a process for making its "slipper"/sock using a "circular knit seamless fabric," not a flat knit process. Ex.

1016, at 1:5-15 (right column); *see* Section X.D. And while Herbert briefly mentions the possibility of "cut and sewn flat rib knitted fabric," such a process also requires cutting steps. Therefore, I disagree that Herbert would lead a POSITA to the flat knit teachings of Cusinato, because Herbert only discusses knitting processes that require cutting (whether circular knit or flat knit), and does not provide any reason for a POSITA to seek out knitting teachings that do not require cutting steps.

91. This leads to my second point of disagreement, which is that Herbert only describes the alleged benefits of its process with respect to its "preferred embodiment," which uses "circular knit seamless fabric," whereby Herbert claims that for "this type of fabric the method of making the finished product is simpler and less expensive." *Id.* at 1:11-15 (right column). In other words, Herbert again would not lead a POSITA to seek out the flat knit teachings of Cusinato, because Herbert only teaches a POSITA that the benefits of a "simpler and less expensive" process are available with circular knitting. In fact, Herbert teaches away from flat knitting in general, because Herbert tells a POSITA that circular knitting is "simpler and less expensive." Therefore, in my opinion a POSITA would not have been motivated to combine or modify Herbert with the flat knit teachings of Cusinato.

92. Finally, I also note that the Petition mentions Spencer for this combination, but it does not assert that Spencer discloses these limitations in

combination with Herbert and Cusinato. Instead, Skechers asserts that Spencer teaches how to manufacture generic "flat knit edges" or "textile element[s] with at least one curved edge." Petition, at 96-97. While Spencer does discuss generic knitting concepts, Spencer is directed to garments, not footwear, and I did not find that the Petition or Dr. Adanur pointed to anything in Spencer that discloses these limitations.

93. Therefore, in my opinion a POSITA would not have been motivated to combine Herbert with Cusinato or Spencer to reach Claims 1[a1] and 15[a1].

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and 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: March 21, 2025

Christopher M. Pastore, Ph.D.

Exhibit A

Curriculum Vitae

Christopher M. Pastore

Professional Experience

2019-present	*Assistant Provost*, Faculty Development: Classroom Pedagogy and Nexus Learning *Professor,* Transdisciplinary Studies *Associate Director*, Institute for Smart and Healthy Cities Thomas Jefferson University, Philadelphia, PA
2012- 2019	*Professor,* Transdisciplinary Studies *Co-Director*, Engineering and Design Institute *Nexus Learning Advocate* Kanbar College of Design, Engineering, & Commerce Thomas Jefferson University/Philadelphia University, Philadelphia, PA
2018 - present	Associate Editor, *Journal of Engineered Fibers and Fabrics*
2017-present	*Honorary Research Professor*, Department of Clothing and Textiles, Durban University of Technology, Durban, South Africa
2017	*Visiting Research Scientist,* Institute of Technical Textiles, RWTH Aachen University, Aachen, Germany
2014	*Visiting Research Professor*, Oak Ridge National Laboratory, Oak Ridge, TN
2003-2007	*Chief Science Officer,* Novacomp, Inc., Willow Grove, PA
2002–2012	*Professor*, Engineering *Co-Director*, Engineering and Design Institute, *Program Director*, Architectural Engineering *Secretary of the Faculty (2008-2009)* *Chair of the Faculty (2009-2010)* Kanbar College of Design, Engineering, and Commerce Philadelphia University, Philadelphia, PA
1995-2002	*Associate Professor* (tenured 2001), *Director of Research,* *Program Director:* Textile Engineering *Program Director:* Fibrous Materials Science, School of Textiles and Materials Technology, Philadelphia University/Philadelphia College of Textiles and Sciences, Philadelphia, PA

1995	*Visiting Research Professor*, Department of Textiles, University of Gent
1993-95	*Associate Professor*, (tenured, 1995) Department of Textile Engineering, Chemistry, and Science, North Carolina State University, Raleigh, NC.
1990-93	*Assistant Professor* , Department of Textile Engineering, Chemistry, and Science, North Carolina State University, Raleigh, NC.
1988-94	*Visiting Research Professor*, NASA Langley Research Center, Hampton, VA (Summers)
1988-90	*Assistant Professor*, Department of Materials Engineering, Drexel University, and *Associate Director*, Fibrous Materials Research Center, Drexel University, Philadelphia, PA.
1984-88	*Research Engineer*, Department of Materials Engineering, Drexel University, Philadelphia, PA.

Education

Ph.D.	Materials Science, Drexel University, Philadelphia, PA, March 1988; *A Processing Science Model for Three Dimensional Braiding*
M.S.	Mathematics, Drexel University, Philadelphia, PA, June 1986. Concentration: Computer Aided Geometric Design.
B.A.	Mathematics, LaSalle University, Philadelphia, PA, June 1982

Recognized Creative and Professional Achievement

Provost's Career Achievement Award, Thomas Jefferson University, 2024

Provost's Award for Applied Research, Thomas Jefferson University, 2022

Marion Roadhouse Nexus Learning Award, Thomas Jefferson University, 2021.

Member, Scientific Committee, *International Conference on Technics, Technology, and Education (ICTTE 2020)*, Yambol, Bulgaria, Nov 4-6, 2020.

National Academy of Inventors, member (Thomas Jefferson University Chapter), 2018

Honorary Research Professor, Faculty of Applied Sciences, Durban University of Technology, Durban, South Africa, 2017 - present

Journal of Engineered Fibers and Fabrics, Associate Editor, SAGE, 2017 - present

Fulbright Specialist, Textile Engineering, 2017-2020

Dr. Jackie Rehkopf Best Paper Award, "Light weighting Composites through Selective Fiber Placement", C. Pastore, 2015 SPE Automotive Composites Conference and Exhibition, Sept. 2015.

President's Award for Excellence, Philadelphia University, 2014.

Citation for Distinction, National Institute of Building Sciences, for the MS Sustainable Design, February 2012,

Best Practices in Communication – Honorable Mention, (for EcoMan and The Skeptic podcast), Council for the Advancement and Support of Education, December 2009.

Excellence in Education Award, (for MS in Sustainable Design Program) United States Green Building Council, 2009

Excellence in Sustainability Education, Delaware Valley Green Building Council, 2007

Philadelphia Sustainability Award, Pennsylvania Environmental Council, 2007

Leadership in Sustainable Building, Pennsylvania Resources Council, 2004

Director's Award, Systems Competency, National Textile Center, 2004

Best Presentation, National Textile Center, 2002, "Architectural Fabric Structures"

Distinguished Achievement in Basic or Applied Fiber Science, Fiber Society, 2000

Commendation from Philadelphia School District - Career to School program, advising high school students in engineering curricula, 1998

Outstanding Teacher of the Year, 1994, College of Textiles, North Carolina State University

Academy of Outstanding Teachers, North Carolina State University, 1994

Scholarly Activities

Books or In Books

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Soft Computing in Textile Sciences, C. Pastore and L. Sztandera, eds., Springer-Verlag, Berlin, October, 2002.

Surface Characteristics of Fibers and Textiles, editor: C. Pastore & P. Kiekens, Marcel Dekker, Inc., NY, Dec. 2000

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Mechanics of Textile and Laminated Composites with Applications to Structural Analysis and Design, C. Pastore and A. Bogdanovich, *Jun, 1996,* Chapmann and Hall, London.

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"Applications of computer aided geometric modelling for textile structural composites." Christopher M. Pastore, Yasser A. Gowayed, and YunJia Cai. In C. Brebbia, W. de Wilde, and W. Blain, editors, *Computer Aided Design in Composite Material Technology*, pages 45--53. Computational Mechanics Publications, Southampton, UK, 1990.

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"CIM of braided preforms for composites." Christopher M. Pastore and Frank K. Ko. In C. A. Brebbia, W. P. deWilde, and W. R. Blain, editors, *Computer Aided Design in Composite Materials Technology*. Springer Verlag, 1990.

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"Perception, Detection and Diagnosis of Appearance Defects in Fabrics", R. McGregor, D. H. Mershon, and C. M. Pastore, *113th Winter Annual Meeting*, Anaheim, CA, Nov. 1992.

"Manufacture of an Aeroelastic Smart Spar", M. Garfinkle, E. S. Greenhalgh, and C. M. Pastore, *Fiber-Tex 1992*,Philadelphia, PA, October 27-29, 1992, NASA Conference Publication 3211, 1993,

"Stochastic Damage Evolution in Textile Laminates", Y. A. Dzenis, A. E. Bogdanovich and C. M. Pastore, *Fiber-Tex 1992*, Philadelphia, PA, October 27-29, 1992, NASA Conference Publication 3211, 1993, pp. 235-248.

"On The Structural Analysis of Textile Composites", A. Bogdanovich, and C. Pastore, *ASME Summer Annual Meeting on Materials and Structures*, Tempe, AZ, April, 1992.

"Analysis of Composite Shallow Shell Structures Reinforced with Textiles", A. Bogdanovich, C. Pastore, and A. Birger, *Textile Composites in Building Construction*, Lyon, France, June 1992.

"Aeroelastic Continuous Fiber Smart Spar", E. S. Greenhalgh, C. M. Pastore, and M. Garfinkle, American Society for Composites, 7*th Technical Conference on Composite Materials*, Oct. 13-15, 1992, University Park, PA.

"Quantification of Processing Artifacts in Textile Composites", C. M. Pastore, *Fiber Tex '92*, Oct. 27-29, 1992, Phila., PA.

"The Effects of Specimen Width on Tensile Properties of Braided Laminates", C. M. Pastore, A. E. Bogdanovich, and J. E. Masters, *3rd Advanced Composites Technology Symposium*, Long Beach, CA, Jun 8-11, 1992.

"Applications of Structural Analysis to Textile Composites", C. Pastore, A. Bogdanovich, and Y.A. Gowayed, Proceedings, *5th Textile Structural Composites Symposium*, Phila., PA Dec. 2-5, 1991.

"Thermal and Thermo-mechanical Characterization of Three Dimensionally Reinforced Fibrous Composites", R. Gabel, A. Fahmy, and C. Pastore, *25th International SAMPE Technical Conference*, Tokyo, Japan, Nov. 1991.

"Modelling of Euclidean Braided Fiber Architectures to Optimize Composite Properties", E. Armstrong-Carroll, F. Ko, and C. Pastore, *Fiber-Tex 91*, Raleigh, NC Oct. 15-17, 1991, NASA CP-3176, pp. 153-157.

"Modelling Textile Composites: An Integrated Process, Property, Structure Approach", E. Greenhalgh, Y. Gowayed, and C. Pastore, *Fiber-Tex 91*, Raleigh, NC Oct. 15-17, 1991.

"Analytical Techniques for Textile Structural Composites: A Comparative Study of US-USSR Research", Y. Gowayed and C. Pastore, *FiberTex '90*, Aug. 14, 1990, Greenville SC

"Computer Aided Design of Three Dimensional Woven Fabrics for Composites", A. Morales, C. Pastore, *FiberTex '90*, Aug. 14, 1990, Greenville SC

"Effects of Processing on the Behavior of 3-D Braided SiC/SiC Composites", C. Pastore, P. Khandelwal, and F. Ko, Proceedings, *13th Annual Conference on Composites and Advanced Ceramic Materials,* Cocoa Beach, FL, Jan. 1989.

"Fabric Geometry and Finite Cell Models for Three Dimensional Composites", F. Ko and C. Pastore, *1st US/USSR Conference on Composite Materials*, Riga, USSR, May 20-25, 1989.

"Modelling of Three Dimensional Braided Carbon/Carbon Composites", C. Lei, F. Ko, and C. Pastore, *Proceedings, High Temperature Composites*, Dayton, OH, 1989.

"A Fabric Geometry Model for Brittle Matrix Composites", C. Pastore, E. Armstrong, and F. Ko, Proceedings, *Ceramic Matrix Composites*, Indianapolis, IN, April 24-26, 1989.

"Near Net Shape Manufacturing of Composite Engine Components by 3-D Architecture", C. Pastore and F. Ko, *Proceedings, Gas Turbine and Aeroengine Congress*, Toronto, Ontario, Canada, June 4-8, 1989.

"Evaluation of CVI Processing on SiC Yarns", C. Pastore, P. Khandelwal, and F. Ko, *Proceedings, 12th Annual Conference on Composites and Advanced Ceramic Materials*, Cocoa Beach, FL, Jan. 1988.

"CAD/CAM of Braided Preforms for Advanced Composites", G. Yang, C. Pastore, *Proceedings, 3rd Annual ASM/ESD Advanced Composites Conference*, Detroit, MI, Set 15-17, 1987.

"A Generalized Processing Science Model for Braided Structures", C. Pastore and F. Ko, *Fiber-Tex 1987*, NASA Publication

"Advanced Preforming Concepts for Structural Carbon/Carbon Composites", Proceedings, *12th Annual Conference on Composites and Advanced Ceramic Materials*, Cocoa Beach, FL, Jan. 1988.

"Structure and Properties of SiC/LAS III Ceramic Matrix Composites", F. Ko, P. Fang, and C . Pastore, *Proceedings, Whisker and Fiber Reinforced Ceramic Matrix Composites*, Oak Ridge National Laboratories, Oak Ridge, TN, May 1988.

"Analytical Techniques for Modelling Mechanical Properties of Multi-axial Textile Composites", C. Pastore, *Proceedings, 3rd Annual Textile Structural Composites Symposium*, Philadelphia, PA June 1-2, 1988.

"Structure and Properties of Hybrid SiC/LAS III Glass Ceramic Matrix Composites", C. Pastore, P. Fang, F. Ko and M. J. Koczak, *Proceedings, Fabricating Composites '88*, Philadelphia, PA, Sept. 1988.

"Structure and Properties of Hybrid SiC/Al-Li Composites", C. Lei, C. Pastore, and F. Ko, *Proceedings, Metal Matrix Composites, '88*, Philadelphia, PA, Sept. 1988.

"A Processing Science Model for Three Dimensional Braiding", C. Pastore and F. Ko, *Proceedings, Advanced Composites Conference,* 1988, Detroit, MI, Sept. 1988.

"An Integrated Design Methodology for Fabric Reinforced Composite Structural Components", T. M. Tan, C. Huang, C. Pastore and F. K. Ko, *Proceedings, ASME Winter Annual Meeting 1988*, Chicago, IL, Oct. 1988.

"Processing Science Model for Three Dimensional Braiding", C. Pastore and F. Ko, *Proceedings, ASME Winter Annual Meeting*, Chicago, IL, Oct. 1988.

"CAD of 3-D Composites", C. Pastore, Proceedings of the *2nd Textile Structural Composites Symposium,* Philadelphia, PA, Feb. 10-11, 1987.

"Structure and Properties of Cardable Glass Composites", F. Ko, M. Williams, C. Pastore, and J. Carey, *Proceedings, International Nonwovens Technical Conference, INDA Tec 87*, Hilton Head, SC, May 18-21, 1987.

"A Fabric Geometry Model for 3-D Braid Reinforced FP/Al-Li Composites", F. Ko, C. Pastore, C. Lei, and D. Whyte, *1987 International SAMPE Metals Conference: Competitive Advances in Metals/Metal Processing*, Cherry Hill, NJ, Aug. 18-21, 1987.

"Textiles: Product Design and Marketing", F. Ko and C. Pastore, *Proceedings, Annual World Conference of the Textile Institute*, Como Italy, May 5, 1987.

"The Effects of Fiber Architecture on SiC/SiC Composites", F. Ko, C. Burkland, C. Pastore, and M. Koczak, *Tenth Conference on Composites and Advanced Ceramic Materials*, Cocoa Beach, FL, Jan. 19-24, 1986.

"Control of Fiber Architecture for Tough, Net Shaped Structural Composites", F. Ko and C. Pastore, *Proceedings, Symposium on High Temperature Materials for the 1990's and Beyond*, Phila. PA, May 16, 1986.

"Cardable Glass Fibers for Composites", M. Williams, F. Ko, and C. Pastore, *Proceedings, IFAI Conference*, Boston MA, Oct. 1986.

"Tensile and Shear Properties of Composites by Various Reinforcement Concepts", A. Mayadas, C. Pastore and F. Ko, *Proceedings of the National SAMPE Technical Conference*, Anaheim, CA, 1985.

"Computer Aided Design of Nonwoven Fabrics", F. Ko and C. Pastore, *Proceedings of INDA Technical Symposium*, Boston MA, 1985.

"Design and Formation of 3-D Fabrics for Advanced Composites", Ko, F.K. and Pastore, C.M., *Composite Materials, NASA Publication CP-2420*, Annapolis, MD, November 1985

"Multilayer, Multidirectional Warp Knit for Industrial Applications", F. Ko, P. Fang, and C. Pastore, *Proceedings, IFAI Textile Technology Forum,* New Orleans, LA, Oct. 31, 1985.

"Nonlinear Viscoelasticity of Natural Polyamide Fibers", Ko, F.K. and Pastore, C.M., Proceedings, *7th International Wool Textile Research Conference*, Tokyo. 1985.

Role of Processing in the Performance of Textile Reinforced Composite Materials, C. Pastore, NCSU COT Graduate Seminar Series, Sept. 1992.

Use of Textile Composites in the Aerospace Industry, C. Pastore, Society for Plastic Engineers, Southern Pines, NC, April, 1992.

Design and Analysis of Three Dimensional Preforms for Composites, C. Pastore, SAMPE Long Island Division, March 14, 1989.

Manufacture, Design and Analysis of Braided Fabrics and Composites, C. Pastore, Proceedings, 4th Annual Textile Structural Composites Symposium, Philadelphia, PA July 24-26, 1989.

Model for Silk-Like Spun Bonded Fabrics, F. Ko, P. Fang, C Pastore, INDA-TEC: The International Nonwovens Technical Conference, Philadelphia, PA, 1988.

Courses Taught

THOMAS JEFFERSON UNIVERSITY

Advanced Textile Composites

Analytical Methods[S]

Architectural Engineering Senior Design

Behavior of Materials[A]

Chemical Protective Clothing[C]

Composite Materials: Design and Analysis

Design of Green Materials[A]

Eco-Innovation and Sustainability[S]

Engineering Dynamics

Engineering Senior Design I & II

Engineering Statics

Experimental Materials[A]

Experimental Structures[A]

Fabric Mechanics

Fabric Studies

Fibrous Composite Materials

Foundations: Fabric Studies

Integrative Design Process

Introduction to Computer Programming

Introduction to Structural Analysis

Introduction to Textile Materials[C]

Introductory Materials Science

Mechanics of Materials

Mechanics of Textiles

Numerical Methods

Probability and Statistics

Processing of Polymers and Fibers

Research Methods

Structural Design of Compressive Systems

Structural Design of Tensile Systems

Structures I [A]

Structures II[A]

Textile Engineering Senior Design I & II

Textile Materials

Textile Problem Solving

Yarn Mechanics

NORTH CAROLINA STATE UNIVERSITY

Design of a Composite Baja Vehicle

Introduction to Fiber Science

Introduction to Textiles

Mechanical Properties of Textiles

Physical Properties of Textile Fibers

Physical Properties of Textiles

Textile Composite Materials

Textile Composites

Textile Honors Seminar

Textile Materials Science Design I

Textile Materials Science Design II

DREXEL UNIVERSITY

Advanced Mechanical Behavior of Materials

Introduction to Materials Science

Numerical Methods for Materials Engineering

Senior Design Thesis

A: College of Architecture and the Built Environment

S: College of Science, Health and the Liberal Arts

C: School of Continuing and Professional Studies

Graduate Student Committees

CHAIR

T. Liao, *Three Braided Composites for Aerospace Applications*, PhD, Engineering, Thomas Jefferson University.

D. Forry, *Properties of knitted fabrics for garment modeling,* MS Textile Engineering, Thomas Jefferson University

C. Anderson, *Development of 3D Printed Gelatinous Composites*, PhD, Textile Engineering, May 2018, Thomas Jefferson University.

C. Huang, *Thermal Conductivity and Tensile Properties of Icelandic Horse Hair Fiber Reinforced Poly(Lactic Acid) Green Composites*, MS Textile Engineering, May 2012, Philadelphia University

J. Xu, *The Influence of Braid Angle and Yarn Twist Match on the Mechanical Properties and Knot Performance of Surgical Sutures*, MS Textile Engineering, May 2012, Philadelphia University

K. Fu, *Influence of Alkali Treatment on the Mechanical Properties of Aligned Jute Yarn/ PLA Composites*, MS Textile Engineering, May 2011, Philadelphia University

X. Qiu, *Acoustic Qualities of Natural Fiber Reinforced Polylactic Acid Composites* MS Textile Engineering, May 2011, Philadelphia University

R. Wu, *Characterization and Development of Flax/PLA Composites for acoustic properties*, MS Textile Engineering, December 2010, Philadelphia University

Y. Rane, *Development of Triggered Degradation for Chitosan Composites*, Ph.D., August 2009, Textile Engineering, Philadelphia University

M. Owens, *Organic Material for Bone Replacement,* MS December 2009, Textile Engineering, Philadelphia University

T. Periyaswamy, *Ultrasonic Characterization of Flexible Textile Materials*, Ph.D., March 2009, Textile Engineering, Philadelphia University

K. Darrah, *Luminous Fabric Structures*, M.S. May 2010, Textile Engineering, Philadelphia University

H. Khurana, *Effect of Processing on Mechanical and Physical Properties of Chemical Protective Clothing*, M.S., May 2006, Textile Engineering, Philadelphia University

A. Naik, *Ultra-light weight cement products for built environments*, M.S., May 2005, Textile Engineering, Philadelphia, University

S. Ram, *Highly extensible knit fabrics for architectural applications*, M.S., May 2004, Textile Design, Philadelphia University

C. Wollner, *Non-linear anisotropic fabrics for architectural structures*, M. S., May 2002, Textile Engineering, Philadelphia University

K. Hristov, *Tensile Characteristics of Hybrid Braided Structures*, M. S., May 2002, Textile Engineering, Philadelphia University

D. Lee, *Moisture Diffusion in Kevlar®-Epoxy Composites*, M.S. May 2000, Textile Engineering, Philadelphia University.

L. DellaPutta, *Dynamic Response of 3D Woven Tapes Subject to Axial Tensile Load,* M.S., August 1998, Textile Engineering, PCT&S

J. N. Singletary *Analysis of Transverse Compressive Response of Anisotropic Single Fibers*, Ph.D., June 1998, Fiber and Polymer Science, NCSU.

T. Chen, *Effect of Glass Fiber Surface Treatments on the Bonding of Glass Fiber in Resin Matrix Composites*, M. S. , May 1998, Textile Engineering, PCT&S

M. W. Dunn, *Renitent Textile Composites: Formation and permeability analysis of porous media*, M.S., May 1997, Textile Engineering, PCT&S.

A. B. Birger, *Development of Curvilinear Spline Aided Techniques for Structural Analysis of Textile Composites*, Ph.D., June 1997, Fiber and Polymer Science, NCSU.

B. Deepak, *Application of Parametric Splines in Curvilinear Coordinate Systems for the Structural Analysis of Inhomogeneous Materials*, Ph.D., June 1997, Fiber and Polymer Science, NCSU.

G. Loughry, *Analysis of Shear Testing Methods for Braided Composite Cylinders and Plates*, M.S., Dec. 1995, Textile Engineering and Science, NCSU.

S. Khedekar, *Modelling of Braided Composites with Architectural Defects*, M.S. Sep. 1995, Mechanical and Aerospace Engineering, NCSU.

C. G. Green, *Cost-Effective Textile Reinforcements for Complex Shaped Automotive Components*, M.S., Dec. 1995, Textile Engineering and Science, NCSU.

P. W. Duke, *Commingled Thermoplastic-Glass Composites Formed from Recyclable Carded Webs*, M.S., Dec. 1995, Textile Engineering and Science, NCSU.

B. Deepak, *Application of Parametric Splines to the Displacement Solution of Textile Composites*, M.S. March. 1995, Textile Engineering and Science and Mechanical and Aerospace Engineering Co-major, NCSU.

E. C. Clyburn, *Application of Neutron Tomography to the Investigation of Textile Reinforcement Geometry in Composites*, M.S., Feb. 1995, Materials Engineering, NCSU.

E. S. Greenhalgh, *Development of Biomimetic Prosthetic Heart Valve Leaflets*, Ph.D., Dec. 1994, Fiber and Polymer Science, NCSU.

Y. Gowayed, *An Integrated Approach to the Mechanical and Geometrical Modelling of Textile Structural Composites*, Ph.D. March 1992, Fiber and Polymer Science, NCSU.

E.S. Greenhalgh, *Fabric Geometry Modelling Applied to Finite Element Methodology for the Prediction of Mechanical Behavior of Cylindrical Composite Structures*, M.S., March 1992 Fiber and Polymer Science, NCSU.

Funded Research Activities

3D Braided rotorcraft components, Phase 2, STTR	Naval Air Warfare Center	2021-2023
3D Braided rotorcraft components, Phase 1 Option, STTR	Naval Air Warfare Center, Patuxent River	2020-2021
3D Braided rotorcraft components, Phase 1 STTR	Naval Air Warfare Center, Patuxent River	2019-2020
Development of a Medical Adhesive with Thermal Release Properties	Saligman Family Surgery Pilot Grant	2018
Effect of Temperature on Strength of Biocompatible Adhesives	Faculty Research Grant	2018
Game Based Learning	Nexus Research Grant	2017
Multi-material preforming of structural automotive composites	Oak Ridge National Laboratory	2013
Development of warp knitted heater panels for helicopter rotors	Cox & Co.	2012-2016
Optimization of braided sutures	Ethicon	2011-2013
Evaluation of energy efficient classrooms	CertainTeed	2011-2012
Development of Cellulose/PLA composites as hardwood replacement	DCED/Comins Guitars	2011
Life Cycle Assessment and Environmental Impact of Textile Products	Federal Mogul	2010-11
Development of braided nerve conduits	Rutgers Univ.	2010-13

Design of Sustainable Classroom Components	CertainTeed	2010
Development of new building products	CS Group	2008
Design of ergonomic, comfortable carriage vests	KDH, Inc.	2007-2009
Effectiveness of stretch fabric for enhanced athletic performance	Lontex, Inc.	2007-2008
Design and Characterization of transparent exterior building insulation materials	Roofscapes, Inc.	2007-2008
Residential Complex Design Charette	Earth Rising, Inc.	2007
Development of wheat gluten polymers	Green Materials R&D	2008
Evaluation of through thickness reinforcement of Carbon/Carbon Composites	MR&D	2007
Pa Green Growth Partnership	PA DCED	2006-2011
Consortium for Sustainable Design and Research	PA DCED	2003-2006
Bioinductive Scaffolds	NIH	2004-2005
Sustainability as a Source of Competitive Advantage	NTC	2003-2005
Representations and Algorithms for Deformable Objects	NSF	2002-2005
Trans-Atlantic Textile Network	FIPSE	2002-2004
Spray-on Insulation System for Housing	State of PA	2002-2004
Engineering and Design Studio	State of PA	2000-2002
Haptic Simulation of Fabric Structures	NTC	2000-2002

Exploring Architectural Fabrics	NTC	2000-2002
Novel Textiles for Military Applications	DARPA	1999
Educating the Educators	NTC	2000-2002
Scale Sensitive Modelling of Braided Hybrid Composites	NTC	1998-2000
Development of self-sealing spacesuit materials	ILC Dover	1998
Materials Characterization of Elastomeric Nonwoven Fabrics	Kimberly Clark	1998
Conversion of natural fiber to textile products	Crane Paper	1998
Dynamic Response of Woven Arresting Tapes	Navy SAWC	1997-99
Apparel Research Network	DLA	1996-1999
Evaluation of Z Fiber Component in Needle Punched Nonwovens	Fiberite	1996-97
A Comparative Theoretical Study of Quasi-Static and Impact Response of Laminated and Textile Composite Structures	ARO	1996-1999
Testing and Analysis of Braided Composite Materials for Automotive Applications	Ford Motor	1994-96
Stress Analysis in Thick Walled Composite Cylinders	ONR	1995-97
Manufacturing and Analysis of Braided Composite Materials	Ford Motor	1993-94
Textile Composite Panels for Improved Indoor Air Quality	EPA	1992-95
Composite Materials for Energy Efficient Structures	Duke Power	1993-95
Prediction of Mechanical Properties of Textile Reinforced Composites	DoC	1992-95

Appearance Defects in Fabrics	DoC	1992-95
Development of Technical Glossary for Textile Composites Industry	NASA	1992
Modelling of Transverse Shear Deformation of Three Dimensionally Woven Composites	State of NC	1992-93
Geometric Modelling of Textile Reinforcements for Structural Analysis	NASA	1991-95

Exhibit B

Dr. Christopher M. Pastore Testimony List

- *Nike, Inc. v. lululemon usa, inc.*, Case No. 1:23-cv-00771 (S.D.N.Y.) (2025)
- *Nike, Inc. v. lululemon usa inc.*, IPR2024-00460 (PTAB) (2025)
- *Good Sportsman Marketing, LLC v. Rugged Cross Hunting Blinds LLC*, 4:23-cv-3243 (S.D. Tex.) (2024)
- *Nike, Inc. v. lululemon usa inc.*, IPR2024-00159 (PTAB) (2024)
- *Nike, Inc. v. lululemon usa inc.*, IPR2023-01460 (PTAB) (2024)
- *Nike, Inc. v. lululemon usa, inc.*, Case No. 1:23-cv-00771 (S.D.N.Y.) (2024)
- *Watterson Construction Co. v. International Door, Inc.*, Case no. 2:22-cv-11037 (E.D.M.I) (2023)
- *Nike, Inc. v. lululemon usa, inc.*, Case No. 1:23-cv-00771 (S.D.N.Y.) (2023)
- *In re Matter of Certain Knitted Footwear*, Inv. No. 337-TA-1289 (ITC) (2022)
- *Moore v. Hunter Safety Sys., Inc.*, Case No. 1931-MC-00688 (Missouri 31st Circuit) (2021)
- *Knauf Insulation, LLC v. Johns Manville Corp.*, Case No. 1:15-cv-00111 (S.D. Indiana) (2021)
- *Strategic Partners, Inc. v. Figs, Inc.*, Case No. 2:19-cv-02286 (C.D. Cal.) (2020)