

SPECTRAL INSTRUMENTS IMAGING,
LLC

Plaintiff,

vs.

SCINTICA, INC.

Defendant.

Civil Action No. 4:22-cv-00043

JURY TRIAL DEMANDED

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I. BACKGROUND AND QUALIFICATIONS

1. I, Prof. Joseph John Talghader, have been retained by Perry & Perry, PLLP, counsel for Defendant Scintica, Inc. (“Scintica”) in the above-captioned proceeding to opine on issues regarding U.S. Patent 8,901,516 (the “’516 patent” or **Exhibit D**). I have been asked to provide an opinion as to the level of ordinary skill in the art at or about the time the applications for the ’516 patent were filed; and the scope and meaning of certain of the disputed patent claims of the ’516 patent. If called upon as a witness, I could competently testify to the truth of each statement herein.

2. I reserve the right to amend or update this report if additional information becomes available.

3. I am currently a Full Professor of Electrical Engineering and Computer Science at the University of Minnesota, Department of Electrical Engineering, in Minneapolis, Minnesota.

4. A copy of my Curriculum Vitae is submitted as **Exhibit A** and includes details of my education, professional, and employment credentials. Further relevant experience, including, but not limited to, the design of lighting systems for medical imaging is set forth below.

5. I received my Bachelor of Science in electrical engineering from Rice University in 1988. I attended the University of California at Berkeley for graduate studies where I earned a Master of Science degree in 1993 and a Ph.D. in 1995 from the Department of Electrical Engineering. I was awarded an NSF Graduate Fellowship for my graduate studies. My doctoral thesis related to semiconductor lasers.

6. I worked for Texas Instruments as a Process Development Engineer, investigating EEPROM memory design and reliability issues from 1992 to 1993.

7. Following my graduation from Berkeley in 1995, I worked for Waferscale Integration, where I developed microfabrication processes for high-density nonvolatile memory devices.

8. In 1997 I joined the faculty at the University of Minnesota as an Assistant Professor and was promoted to Associate Professor in 2003. In 2008 I was promoted to Full Professor in the Department of Electrical and Computer Engineering of the University of Minnesota.

9. I have taught classes on several engineering topics, such as Introduction to Modern Optics, Infrared Physics and Technology, Optical Electronics, Introduction to Microsystems Technology, Optical Fiber Communication, Advanced MOS Devices, Semiconductor Properties, Semiconductor Devices, Advanced Semiconductor Devices, Quantum Electronics, Transmission Lines (Electromagnetism), and Linear Systems and Circuits.

10. I have extensive experience in the study and design of light emitting devices (including light emitting diodes, computer and other displays, semiconductor and other types of lasers, and incandescent lights), optics, optical and infrared materials, optical and infrared detectors and focal plane arrays, optical coatings, optical filters, optical diffusers, photovoltaic and solar cells devices, and directed energy component technologies. I have experience in research using lasers to study laser-induced material breakdown. I have performed research on multispectral thermal detectors and heat transfer devices. I have also worked on projects involving the scanning of biological samples, including fluorescent imaging.

11. I have consulted in the following industries: light emitting diode design for tissue oxygenation sensing, computer and other displays regarding blue light emission and toxicity, micromechanical devices for biosensing, microelectronics packaging, microelectronics assembly, and fiber optic telecommunications.

12. I am named as an inventor on 8 issued U.S. patents. I am also named as an inventor on other patent application publications. A list of issued U.S. patents naming me as an inventor is found in **Exhibit B**.

13. A list of all the publications I have authored in the previous ten (10) years are found in the copy of my Curriculum Vitae (**Exhibit A**) attached to this report.

14. I have not testified as an expert at trial or by deposition in the last four (4) years.

II. INFORMATION RELIED UPON

15. In the course of my analysis and the formulation of my opinion, I have reviewed numerous documents produced in this case as well as reviewed publicly available information deemed pertinent. My opinions and analyses are presented in Section IV and are based on my independent examination of information, including those items listed in **Exhibit C** to this report, and my professional experience.

16. Information from either Plaintiff or Defendant may also be updated before trial. Therefore, I reserve the right to revise or expand these opinions before trial.

17. The report is to be used for the specific purpose of this litigation and is not to be used for any other purpose without my express prior written consent.

III. APPLICABLE PRINCIPLES

A. Level of Ordinary Skill in the Art and Relevant Time Frame

18. The '516 patent relates to an excitation light source assembly for an imaging system, including a housing for holding light sources and other optical components, such as a diffuser, and a control system connected to each of the light sources to provide an excitation illumination to an object that can be captured by a camera. To understand the patent, a person of ordinary skill in the art should have an understanding of light sources, structures for holding and

electrically connecting the light sources, optical devices such as filters and diffusers, cameras, and control systems to operate the light sources.

19. It is my understanding that factors such as the types of problems encountered in the art, prior art solutions to such problems, how fast innovations are made, sophistication of the technology, and the educational level of active workers in the field are to be considered when determining the level of ordinary skill in the art.

20. After considering such factors, it is my opinion, that a person of ordinary skill in the art would have at least a bachelor's degree in engineering or physics and about two years of experience in imaging systems or studies or research relating to light sources used in imaging systems. Additional education may supplement practical experience and additional practical experience may supplement education.

21. In my opinion, I meet the conditions for a person of ordinary skill in the art of the '516 patent.

22. I understand that the '516 patent has a priority date, as stated on its face, and that this is the relevant time frame for the purpose of determining how a person of ordinary skill in the art would understand the claims of the '516 patent.

23. The '516 patent states that it was filed on August 31, 2011, and that it claims the benefit of a Provisional patent application No. 61/379,282, filed on September 1, 2010 (the "Provisional Application" or **Exhibit E**). I have not conducted a detailed comparison of the contents of the Provisional Application and the '516 patent, but it is plain to see that they are not the same documents. The Provisional Application has 28 numbered paragraphs, 17 unnumbered photos, and 7 numbered, hand-annotated figures, and the '516 patent has 71 numbered paragraphs, no unnumbered photos, and 13 numbered figures that appear to be typed and not hand-annotated. **Exhibit E**, pp.6-43; Spectral_0000026 – 0000067. Furthermore, the '516 patent refers to

“receptacles 18” in a “housing 14” and “light sources 20” (see, for example, ’516 patent, 3:26-30), but the Provisional Application does not appear to use the term “receptacle” and instead refers to “elongated holes” in the housing (Provisional Application, p.6, ¶0002, *see also* pp.6-43, generally). Therefore, the ’516 patent specification and the Provisional Application specification are not identical.

24. Whether the date attributed to claims of the ’516 patent is September 1, 2010 (the Provisional Application filing date) or August 31, 2011 (the filing date of the ’516 patent application), in my opinion a person of ordinary skill in the art would interpret the claim language discussed herein the same way for either date.

B. Claim Construction

25. I understand that the claims of a patent define the alleged invention, and the purpose of claim construction is to understand how a person skilled in the relevant art would have understood disputed claim terms at the time of the alleged invention.

26. I understand that a patent may include two types of claims, independent and dependent. An independent claim stands alone and includes limitations it recites. A dependent claim depends on an independent claim or another dependent claim, and includes the limitations that it recites, in addition to the limitations recited in the claim(s) from which it depends.

27. I understand that the words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art at the time of the invention, when read in the context of the patent, including the claims and specification, and also in the context of the prosecution history.

28. I understand that the patent and its prosecution history are part of what is called “intrinsic evidence.” I understand that the intrinsic evidence only compels departure from the plain meaning of claim terms in two situations, when the patentee acts as his or her own lexicographer

or if the patentee disavows claim scope. I further understand that to act as its own lexicographer a patentee must clearly set forth a definition of a claim term and clearly express intent to define the term. I also understand that disavowal requires that the intrinsic evidence makes clear that the invention does not include a particular feature or requirement.

29. I understand that, in certain circumstances, the Court may need to look beyond the intrinsic evidence and consider “extrinsic evidence” in order to understand, for example, the meaning of a term in the relevant art at the time of the invention, or to understand the background of the technology. I understand that extrinsic evidence can include things like, for example, expert opinions, dictionaries, treatises, statements by the parties, other patents, and publications.

IV. CLAIM CONSTRUCTION OPINIONS

A. **“a housing defining a central opening therein and a plurality of lamp receptacles surrounding the central opening” (Claim Term #1)**

30. One of the claim phrases about which I have been asked to render an opinion on is “a housing defining a central opening therein and a plurality of lamp receptacles surrounding the central opening,” recited in independent claims 1 and 14, and referenced as “said housing” in dependent claims 4, 12¹, 13², 16, 24. (Claim Term #1.)

31. In my opinion, after reading the ’516 patent and its prosecution history a person of ordinary skill in the art would conclude that the housing defines **both** the central opening **and** the plurality of lamp receptacles surrounding the central opening.

1. **’516 Prosecution History Shows Plaintiff Argued that the Claims Require the Housing to Define a Plurality of Lamp Receptacles**

32. To overcome rejections of the claims of the ’516 patent application, Plaintiff argued the housing defines the plurality of lamp receptacles. For example, in response to the Examiner’s

¹ Claim 12 is not one of the Asserted Claims in this case.

² Claim 13 is not one of the Asserted Claims in this case.

obviousness rejection combining three prior art references (Pohlert, Kelly, and Nomura, **Exhibits F, G, and H**, respectively)³, Plaintiff argued “...the resulting combination [of Pohlert, Kelly, and Nomura] would still fail to meet at least the limitations of the claims that **require the housing 14 to define a plurality of lamp receptacles 18.**” (Amendment of April 30, 2013, at Spectral_0000828-0000829 (bolding added for emphasis), responding to an Office Action of January 30, 2013, at Spectral_0000775-0000788.)

33. In that same Amendment, Plaintiff also argued “**Independent claim 1 requires that housing 14 define a plurality of lamp receptacles 18.**” Spectral_0000829 (italics in original, bolding added for emphasis). Plaintiff asserted that Pohlert was distinguishable from claim 1, stating “[n]owhere does Pohlert [US Patent Pub. No. US 2009/0268426 A1] disclose, or even suggest, an embodiment having a **housing that defines both a central opening therein as well as a plurality of lamp receptacles.**” Spectral_0000829 (bolding added for emphasis). Plaintiff further argued: “...Kelly’s [U.S. Patent 6,454,437 B1] **housing 2 also does not define a plurality of lamp receptacles.**” *Id.* (bolding added for emphasis).

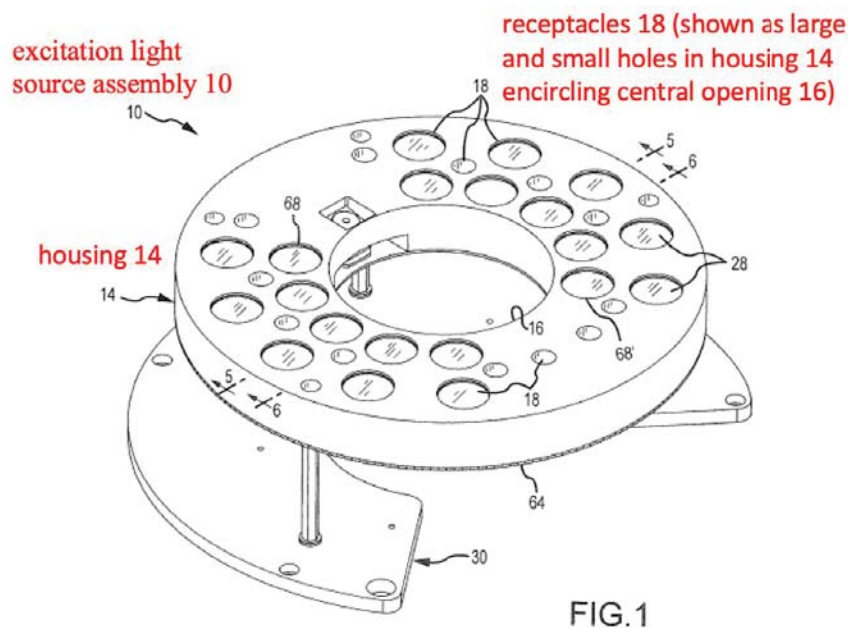
34. A person of ordinary skill in the art would understand from the prosecution history that Plaintiff represented that the claims “**require the housing 14 to define a plurality of lamp receptacles 18.**” Amendment of April 30, 2013, at Spectral_0000828-0000829 (bolding added for emphasis).

2. ’516 Patent Specification Confirms the Housing Defines the Lamp Receptacles

35. A person of ordinary skill in the art would consult the ’516 patent to understand what the “housing 14 to define a plurality of lamp receptacles 18” means. *Id.* The ’516 patent

³ Certain other dependent claim rejections used combinations of Pohlert, Kelly, and Nomura with additional references, such as Furze, U.S. Patent Appln. Pub. 20040245170 A1 (**Exhibit I**), for claim 5, and Flexman, U.S. Patent Appln. Pub. 20040121175 A1 (**Exhibit J**), for claim 27.

shows that housing 14 is part of the excitation light source assembly 10 as illustrated in different views by Figures 1, 2, 3, 5, and 6. Figure 1 shows a plurality of lamp receptacles 18 as large and small diameter holes in the housing 14:



'516 Patent, FIG. 1, Housing 14 Defining Lamp Receptacles 18 and Central Opening 16

'516 patent 2:49-51.

36. A person of ordinary skill in the art observing the lines 5 and 6 on Figure 1 would refer to the '516 patent which states that FIG. 5 is a "sectional view in perspective of the excitation light source assembly taken along the plane 5-5 of FIG. 1," showing a cross section of housing 14 having narrow-band light sources 22 in the large hole receptacles 18:

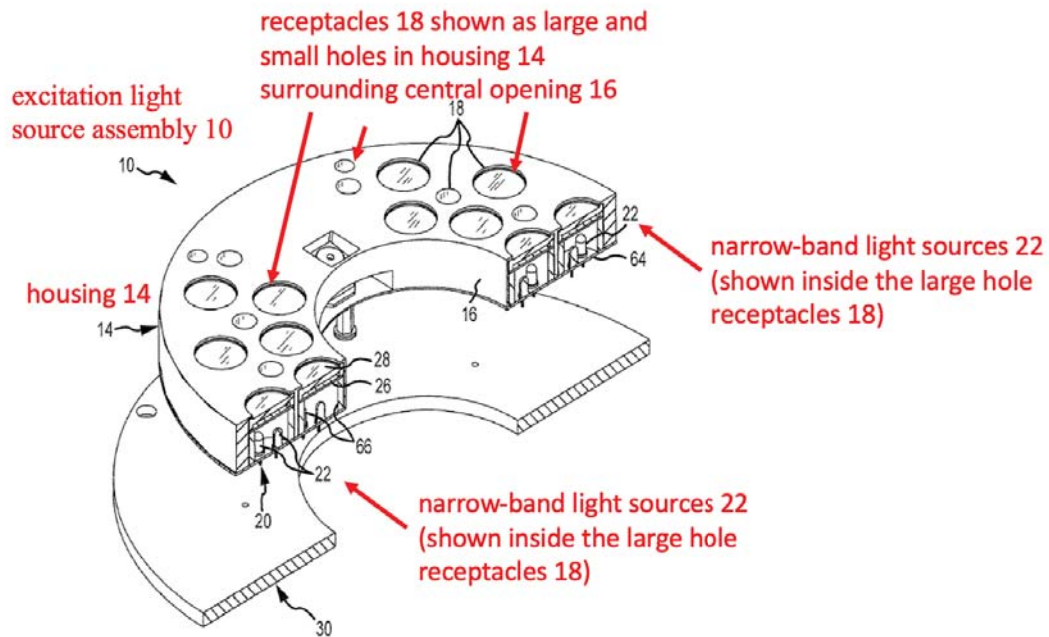


FIG.5

'516 Patent, FIG. 5, Housing 14 Large Receptacles 18 Sectional Drawing

'516 patent, 2:61-62.

37. Figure 6 shows a sectional view of housing 14 showing a cross-section of the small hole receptacles 18 that have broad-band light sources 24:

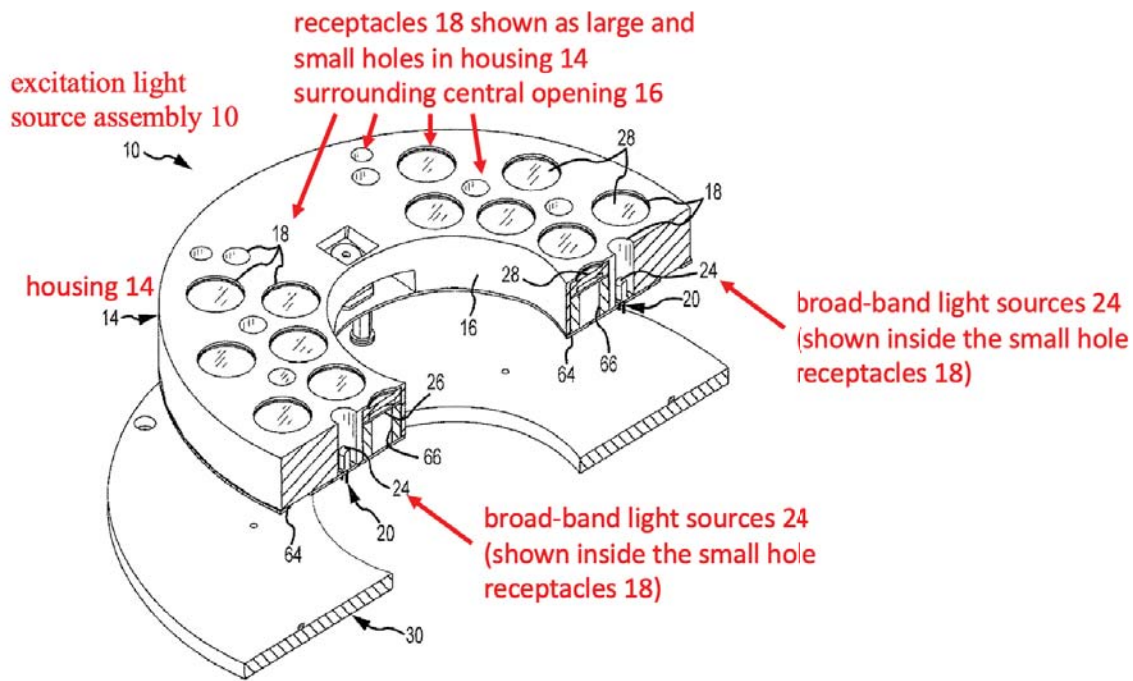


FIG.6

'516 Patent, FIG. 6, Housing 14 Small Receptacles 18 Sectional Drawing

'516 patent, 2:63-64.

38. The '516 patent specification also states that housing 14 defines a plurality of receptacles, stating: "Referring now primarily to FIGS. 3, 5, and 6, the main body member 14 of excitation light source assembly 10 also **defines a plurality of lamp receptacles 18 therein that are arranged around the central opening 16.**" '516 patent, 6:46-49 (bolding added for emphasis).

39. Certain of the dependent claims of the '516 patent also explicitly reference "lamp receptacles **defined by said housing.**" '516 patent claim 4 (which depends on independent claim 1), claim 16 (which depends on independent claim 14), and claims 26 and 27 (which depend on independent claim 25); at '516 patent, 13:49-50, 14:47-48, 16:4-5, 16:11-12 (bolding added for emphasis).

3. The Plurality of Lamp Receptacles are Holes

40. A person of ordinary skill in the art would refer to the '516 patent to understand the structure of a "receptacle" as used in the '516 patent. The '516 patent states: "The housing or main body member 14 may also define a plurality of lamp receptacles 18 that are arranged around the central opening 16, as best seen in FIGS. 1 and 3. The various lamp receptacles 18 are configured to receive various light sources or lamps 20." '516 patent, 3:26-30. The '516 patent further states: "the light sources or lamps 20 may comprise one or more narrow band light sources 22 and/or one or more broad-band light sources 24, as best seen in FIGS. 5 and 6." '516 patent, 3:31-34. A person of skill in the art would inspect Figures 5 and 6 to see cross sectional drawings of the lamp receptacles.

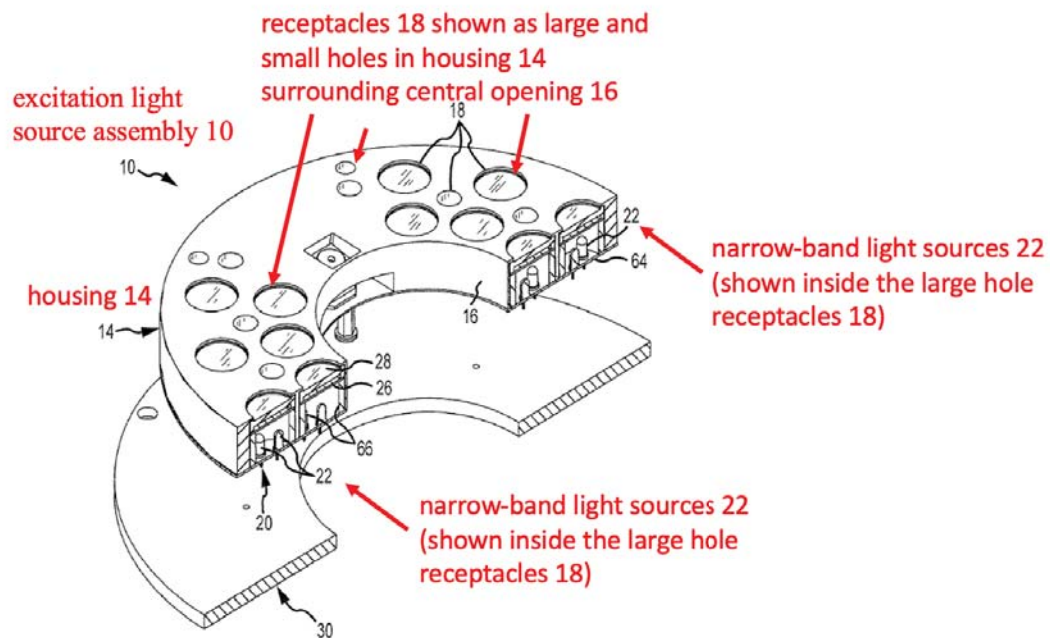


FIG.5

'516 Patent, FIG. 5, Housing 14 Large Receptacles 18 Sectional Drawing

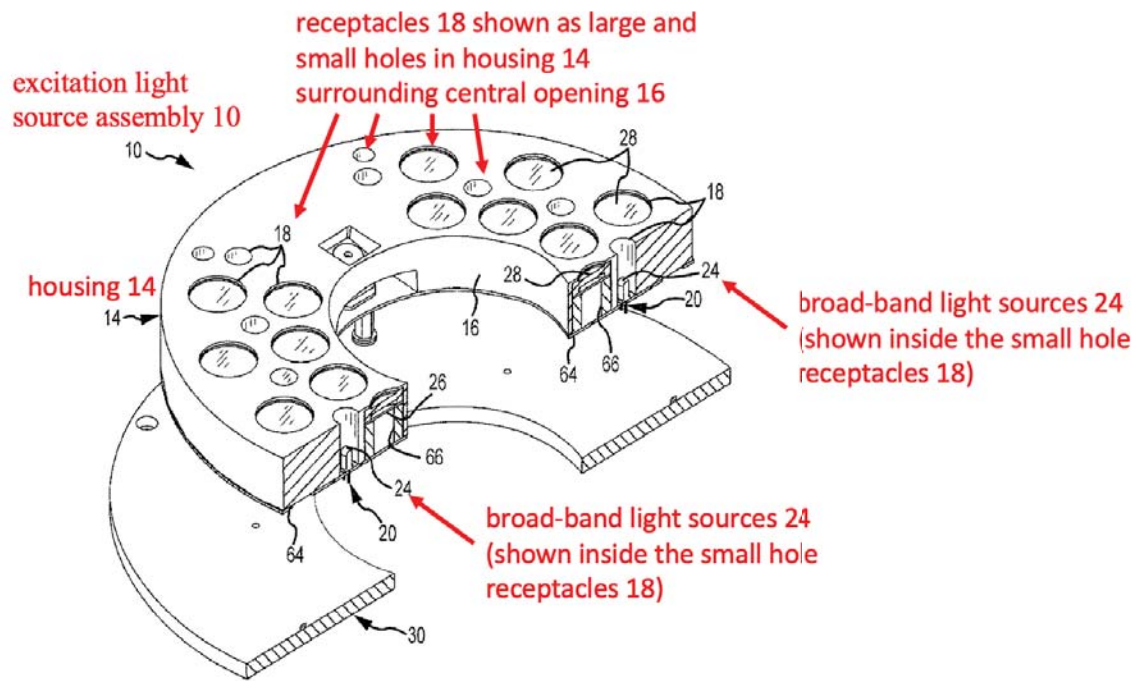
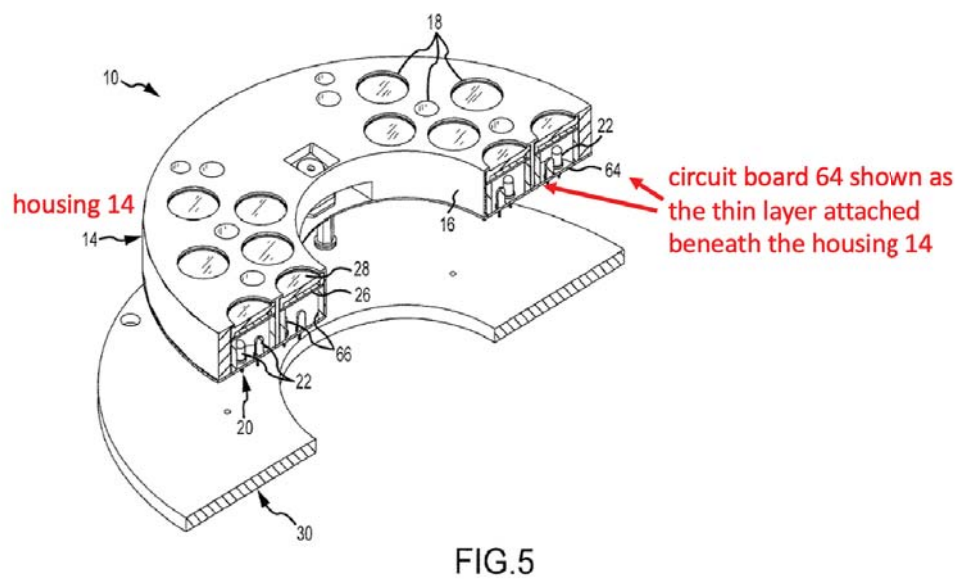
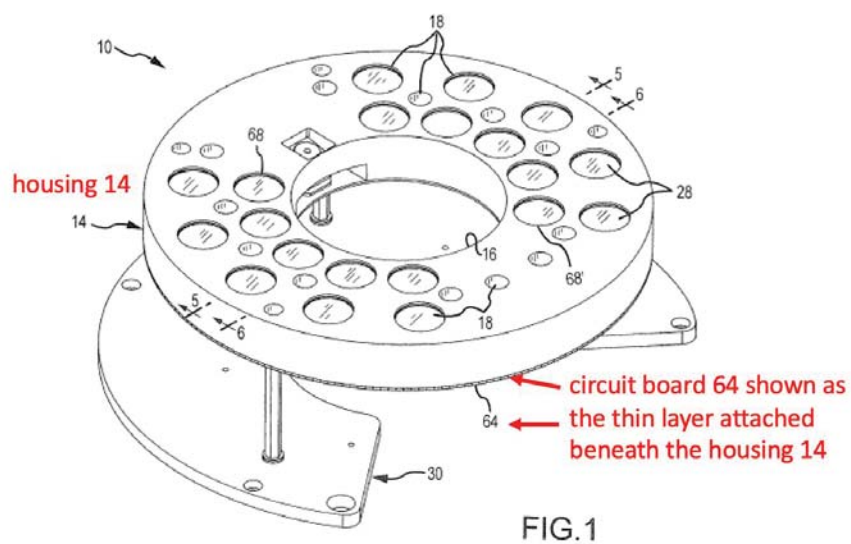


FIG. 6

'516 Patent, FIG. 6, Housing 14 Small Receptacles 18 Sectional Drawing

41. A person of skill in the art would observe that the receptacles are holes (in other words, voids) that encircle the opening at the center of the main body member or housing 14.

42. A person of skill in the art would also conclude that the '516 patent does not refer to the term "receptacles" of the main body member (or housing 14) for electrical connections. The '516 patent instead refers to a separate circuit board 64 that light sources 20 are mounted to and the circuit board is "mounted or affixed to the main body 14" as shown in Figures 1, 5, and 6. '516 patent, 7:55-58, FIGS. 1, 5, 6.



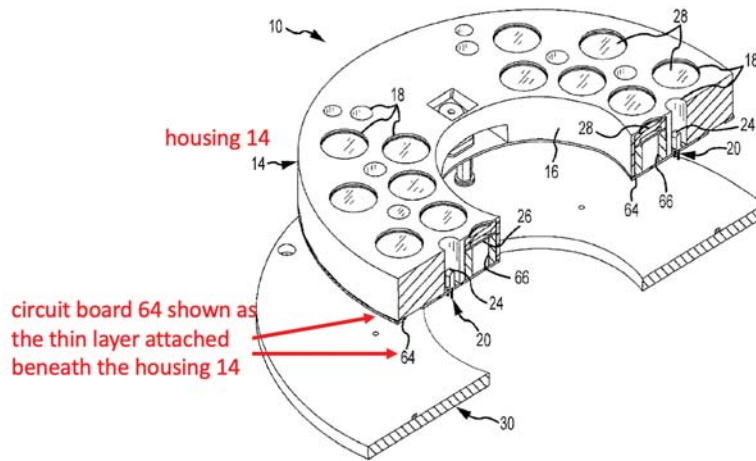


FIG.6

43. A person of ordinary skill in the art would understand that the '516 patent references circuit board 64 as the “means for physically supporting various light sources 20 within the lamp receptacles 18 and for electrically connecting the light sources 20 to the control system 40.” '516 patent 7:59-62.

44. Accordingly, the '516 patent uses the term “receptacle” of housing 14 to mean a hole, a void or a space in the housing. A person of ordinary skill in the art would understand that the '516 patent “housing” and “receptacle” is substantially different than an electrical power receptacle (for example), which provides (1) electrical connection, (2) mechanical retention, and (3) a vacancy or space such as for an electrical plug or a light bulb (as examples) to fit in.

45. Based on the foregoing, a person of skill in the art would understand that plain and ordinary meaning for a housing defining a plurality of lamp receptacles (suggesting an electrical connection) would be misleading and not representative of the housing of the '516 patent because the “receptacles” of the '516 patent are holes in the housing and not electrical connections.

4. Provisional Application Confirms that the Plurality of Lamp Receptacles are Holes

46. The '516 patent incorporates by reference U.S. Provisional Patent Application No. 61/379,282 (the "Provisional Application") "for all that it discloses." '516 patent, front page, 1:5-9.

47. A person of ordinary skill in the art would review the disclosure of the Provisional Application and observe that it refers to the holes in its housing as "elongated holes" instead of "receptacles." For example, the Provisional Application states: "A light source is positioned within each of the plurality of **elongated holes defined by the housing**." Provisional Application, p.1 (bolding added for emphasis).

5. Claim Construction of Claim Term #1

48. In my opinion, a person of ordinary skill in the art would read the '516 patent specification and the file history and conclude that the "housing" defines **both** the plurality of receptacles **and** a central opening because the entire housing phrase read as a whole characterizes **the housing** by its opening in the center (the "central opening") and the plurality of holes in the member that encircle the opening (the "receptacles" or "elongated holes").⁴

49. Based on the foregoing, I propose the following construction for Claim Term #1:

No.	Claim Term or Phrase	Claim	Defendant's Proposed Construction or Position
1.	"a housing defining a central opening therein and a plurality of lamp receptacles surrounding the central opening"	1, 14	a main body member having an opening through its center, the member having a plurality of holes in the member that encircle the opening

⁴The Merriam-Webster Dictionary states that "surround" means to "enclose on all sides, envelop," or "to extend around the margin or edge of, encircle." <https://www.merriam-webster.com/dictionary/surrounding> last visited October 17, 2022 (Exhibit L).

B. “a housing defining a central opening therein and a plurality of lamp receptacles therein surrounding the central opening” (Claim Term #2)

50. I have been asked to render an opinion on the phrase “a housing defining a central opening therein and a plurality of lamp receptacles therein surrounding the central opening,” recited in independent claim 25, and referenced as “said housing” in dependent claims 26⁵ and 27⁶. (Claim Term #2.)

51. The only difference in Claim Term #2 from Claim Term #1 is the word “therein” following “lamp receptacles.” As discussed above, the prosecution history and patent specification analyses of Claim Term #1 demonstrate that the plurality of lamp receptacles are holes in the main body member or housing. Consequently, the addition of the word “therein” does not change the analysis.

1. Claim construction of Claim Term #2.

52. Therefore, my proposed construction for Claim Term #2 is the same as the construction for Claim Term #1.

No.	Claim Term or Phrase	Claim	Defendant’s Proposed Construction or Position
2.	“a housing defining a central opening therein and a plurality of lamp receptacles therein surrounding the central opening”	25	a main body member having an opening through its center, the member having a plurality of holes in the member that encircle the opening

⁵ Claim 26 is not one of the Asserted Claims in this case.

⁶ Claim 27 is not one of the Asserted Claims in this case.

C. “a light source positioned within each of the plurality of lamp receptacles” (Claim Term #3)

53. Claim Term #3 recites “a light source positioned within each of the plurality of lamp receptacles.” Claim Term #3 is recited in independent claims 1 and 25.

54. In the prosecution of the ’516 patent application there were multiple office actions. The Office Action of January 30, 2013 included an obviousness rejection combining three prior art references (Pohlert, Kelly, and Nomura, **Exhibits F, G, and H**, respectively), Office Action of January 30, 2013, at Spectral_0000775-0000788.

55. Plaintiff filed an Amendment with remarks in response to the Office Action. Amendment of April 30, 2013, at Spectral_0000812-0000838. Plaintiff argued that Pohlert was distinguishable from claim 1, stating “[n]owhere does Pohlert [US Patent Pub. No. US 2009/0268426 A1] disclose, or even suggest, an embodiment having a **housing that defines both a central opening therein as well as a plurality of lamp receptacles.**” Spectral_0000829 (bolding added for emphasis). Plaintiff further argued: “...Kelly’s [U.S. Patent 6,454,437 B1] **housing 2 also does not define a plurality of lamp receptacles.**” *Id.* (bolding added for emphasis). Thus, Plaintiff argued that Pohlert and Kelly were different than the claimed subject matter, saying that their structures don’t provide a housing defining a plurality of receptacles.

56. Pohlert’s figures, such as FIG. 4, show surface mounted light sources, such as lamp segments 306 comprising a plurality of low power lamps 305, which comprise light emitting diodes (LEDs) and in various embodiments include surface mount LEDs. Pohlert, ¶¶0098, 0155, FIG. 4.

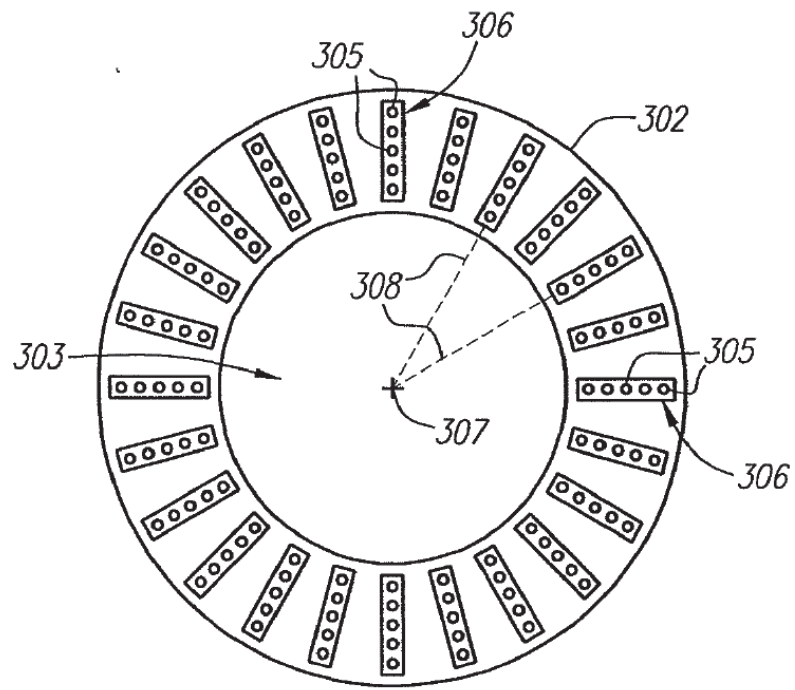


FIG. 4

57. Figures 11 and 12 of Pohlert show a plurality of lamps 1112 mounted on lighting frame 1101, which may be covered with other structures, such as a diffusion filter 1205, a color filter 1215, and a cover 1218. Pohlert, ¶¶0144, 0149, FIGS. 11, 12.

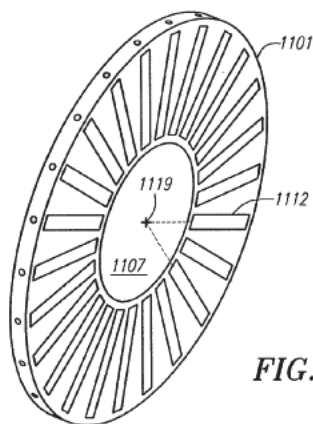


FIG. 11

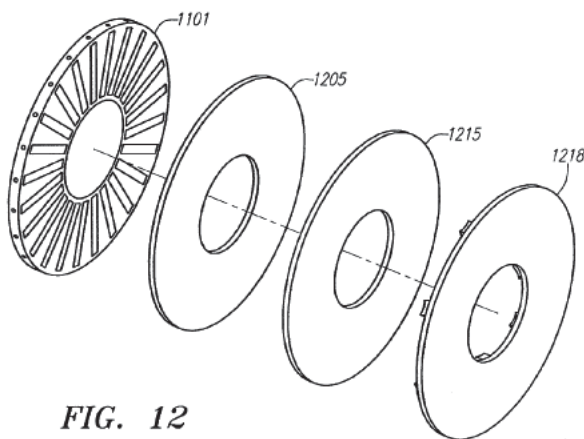


FIG. 12

58. A person of ordinary skill in the art would be able to access a definition of a surface mounted device. For example, the IEEE definition of “surface-mounted-device”: “A device in which the entire body of which projects in front of the mounting surface, with no portion penetrating the mounting surface.”⁷ Surface-mounted devices were well known prior to the filing dates of the ’516 patent as demonstrated by Pohlert, and “surface mount” or “surface mounted” as used in Pohlert (for example, at paragraph 155 of Pohlert) is a ubiquitous term of art that has the same meaning as set forth in IEEE Standard C37.20.10. **Exhibit M**, p.24.

⁷ IEEE Standard C37.20.10-2016 IEEE Standard Definitions for AC (52 kV and below) and DC (3.2 kV and below) Switchgear Assemblies at p. 24. Definition of “surface-mounted-device,” (**Exhibit M**).

59. A person of ordinary skill in the art would understand that Pohlert has numerous references relating to surface mount LEDs throughout its specification and that Pohlert's disclosure of surface mount devices is consistent with the IEEE definition. I searched and found over 30 instances of the phrase "surface mount" in Pohlert. See, for example, Pohlert, ¶155.

60. In addition to arguing that Pohlert's surface mounted light sources do not teach the recited "housing" and do not teach "light sources positioned within each of its receptacles," Plaintiff argued that "Kelly's housing 2 also does not define a plurality of lamp receptacles." Amendment of April 30, 2013, at Spectral_0000829.

61. Pohlert and Kelly are prior art examples of surface mounted light sources used in a rejection by the Examiner in prosecution. Plaintiff argued that a light source positioned *within* receptacles (as recited in claim 1) is different than the surface-mounted light sources of Pohlert and Kelly:

"Independent claim 1 requires that housing 14 define a *plurality* of lamp receptacles 18. Claim 1 also requires at least one light source 20 to be positioned *within* each of the plurality of lamp receptacles 18. These limitations are not met by any of Pohlert, Kelly, and Nomura. For example, while Pohlert discloses several different lighting frame embodiments (e.g., 202, 302, 1101, etc., shown in Figs. 1-4, 11, and 12), none of Pohlert's lighting frames define a plurality of lamp receptacles within which are received the light sources. To the contrary, Pohlert mounts his light sources directly *on* the surfaces of his lighting frames. See, for example, Figures 2, 4, 11, 12, 15c, 30a, 30b, and 30c of Pohlert. Nowhere does Pohlert disclose, or even suggest, an embodiment having a housing that defines both a central opening therein as well as a plurality of lamp receptacles. Pohlert further fails to disclose a lighting system wherein the light sources are positioned *within* each of its receptacles. "

Spectral_0000829 (emphasis in original).

62. In the next Office Action dated July 10, 2013, the Examiner withdrew the prior rejection based on Plaintiff's arguments from the prior Amendment. Spectral_0000844. The Examiner acknowledged Plaintiff's exclusion of surface mounted devices (for example, the surface mounted LEDs of Pohlert), stating for example, Pohlert "fails to explicitly state that said light source is positioned within each of a plurality of lamp receptacles." Spectral_0000847. The Examiner continued: "Nevertheless, those skilled in the art appreciate that such a configuration was known and would have been a matter of design choice since there were a finite number of predictable configurations (i.e., **surface mount**, recessed receptacle)." *Id.* (bolding added for emphasis). The Examiner made a new rejection using a new reference, Chapman (**Exhibit K**), to provide the recessed receptacle: "Substituting the **surface mount configuration taught by Pohlert** with the receptacles taught by Chapman would have been obvious" *Id.* (bolding added for emphasis). The Examiner thus differentiated surface mount devices from recessed devices based on Plaintiff's arguments in prosecution.

1. **Claim construction of Claim Term #3.**

63. Based on the foregoing, I propose the following construction for Claim Term #3:

No.	Claim Term or Phrase	Claim	Defendant's Proposed Construction or Position
3.	"a light source positioned within each of the plurality of lamp receptacles"	1, 25	a non-surface-mounted light source in each of the plurality of holes in the member

D. **"a narrow-band light source positioned within at least one of the plurality of lamp receptacles" (Claim Term #4)**

64. Claim Term #4 recites "a light source positioned within at least one of the plurality of lamp receptacles." Claim Term #4 is recited in independent claim 14.

65. Claim Term #4 differs from Claim Term #3 in that it requires the light source to be a narrow-band light source whereas Claim Term #3 recites “a light source.” Claim Term #4 also recites that its narrow-band light source is “positioned within at least one of the plurality of lamp receptacles” instead of in “each” of its plurality of receptacles, as stated in Claim Term #3.

1. Claim construction of Claim Term #4.

66. Based on the foregoing, I propose a slightly different claim construction for Claim Term #4, which takes into account Plaintiff’s disavowal of surface-mounted devices and the “at least one” recitation of the number of light sources positioned within receptacles:

No.	Claim Term or Phrase	Claim	Defendant’s Proposed Construction or Position
4.	“a narrow-band light source positioned within at least one of the plurality of lamp receptacles”	14	a non-surface-mounted narrow-band light source in at least one of the plurality of holes of the member

E. “diffuser” (Claim Term #5)

67. Claim Term #5 is “diffuser.” Claim Term #5 is referenced as “a diffuser positioned within at least some of the plurality of receptacles” in independent claims 1 and 14, it is referenced as “at least one diffuser” in dependent claim 4, and it is referenced as “the diffusers” in dependent claim 15.

68. The ’516 patent states that optical diffusers are “well known in the art.” ’516 patent, 9:29-30. I agree.

69. The ’516 patent specification states that a “diffuser 26 diffuses or spreads light produced by the light source 20, thereby generally providing for more even illumination than would be provided by light source 22 alone.” ’516 patent, 9:22-25. While I generally agree with this characterization, in my opinion a person of skill in the art would understand that a diffuser

diffuses or spreads light by randomizing rays of light passing through it to make the light passing through it more even.

1. Claim construction of Claim Term #5.

70. Based on the foregoing, I propose the following construction of “diffuser”:

No.	Claim Term or Phrase	Claim	Defendant’s Proposed Construction or Position
5.	“diffuser”	1, 4, 14, 15	an optical component that spreads and randomizes rays of light passing through it to provide more even illumination than would be without the optical component

F. “a diffuser positioned within at least some of the plurality of lamp receptacles” (Claim Term #6)

71. Claim Term #6 refers to the diffuser “positioned within at least some of the plurality of receptacles” in independent claims 1 and 14.

72. The ’516 patent specification states:

In a typical application, those lamp receptacles 18 that are provided with narrow band light sources 22 may also be provided with diffusers 36 and filters 28, whereas those **receptacles 18 that are provided with broad-band light sources 24 will not be provided with diffusers 26** and filters 28. Alternatively, other arrangements are possible, as will be described herein.

’516 Patent, 3:40-51 (bolding added for emphasis).

73. Therefore, the ’516 patent specification states that “in typical applications” receptacles provided with broad-band light sources will not be provided with diffusers, and that, “[a]ternatively, other arrangements are possible, as will be described herein.” Id.

74. I studied the ’516 patent specification for how it describes the use of diffusers. In Figures 5 and 6, the diffusers 26 are positioned within receptacles only with narrow-band light

sources 22, consistent with the '516 patent's limitation of diffusers adjacent narrow-band light sources only.

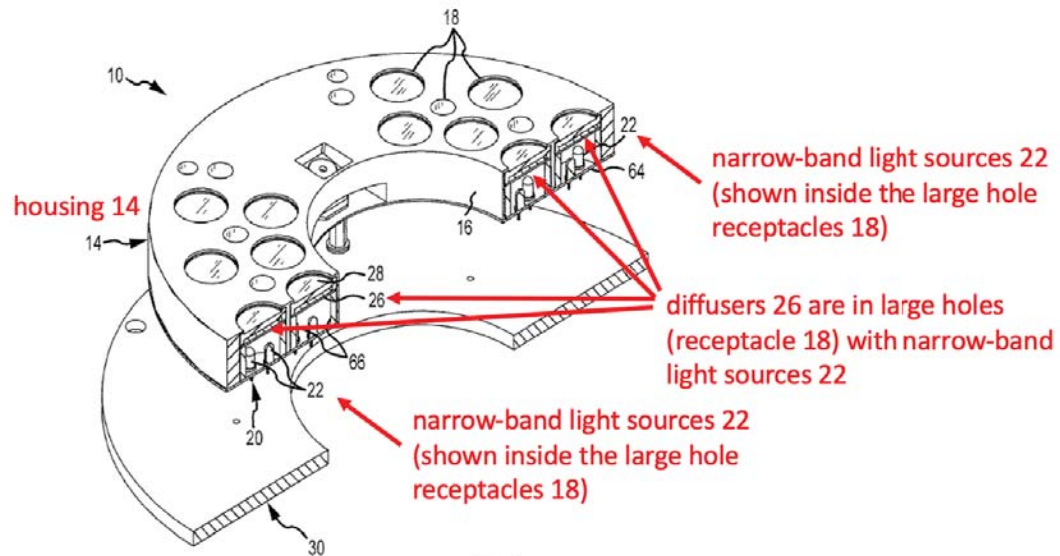


FIG. 5

'516 Patent FIG. 5 Showing Diffusers for Narrow-Band Light Sources Only

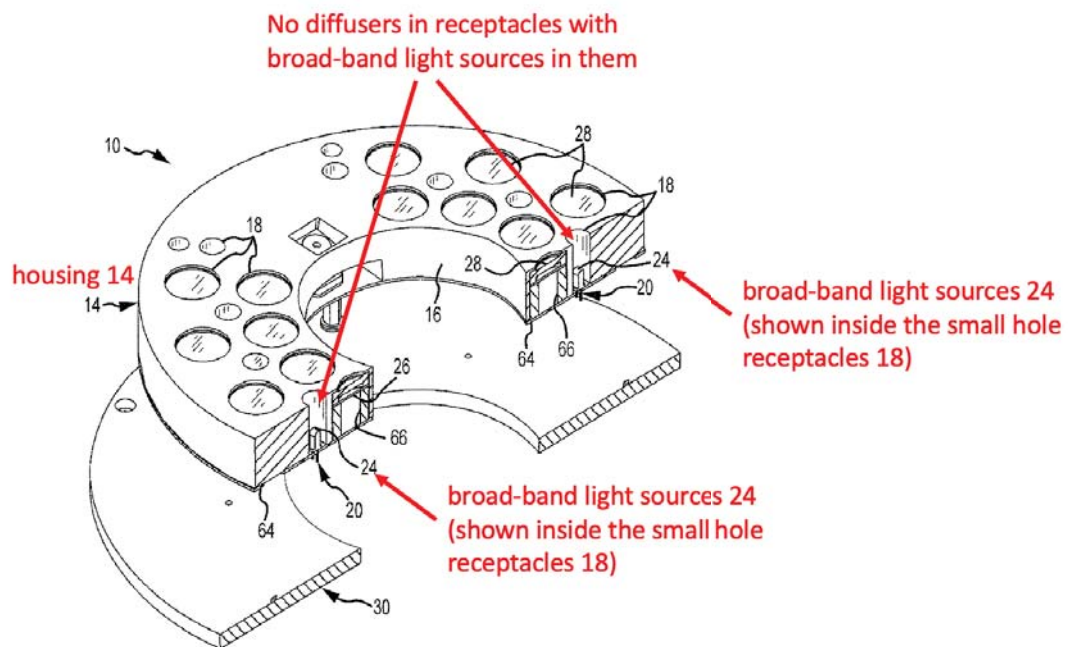


FIG. 6

'516 Patent FIG. 6 Showing No Diffusers for Broad-Band Light Sources

75. I searched for examples of diffusers in receptacles having broad-band light sources 24 in the '516 patent specification, and I was unable to find any.

76. I searched for examples of diffusers in the embodiment of FIGS. 9-11, which the '516 patent names "a second embodiment 110." '516 patent, 3:3-5, 11:6, etc. I observed that the '516 patent uses like numbering for the second embodiment, adding a "1" prior to an existing label number to designate it in the second embodiment. For example, in the first embodiment, a diffuser is labeled "26" and in the second embodiment, a diffuser is labeled "126." '516 patent, 12:26.

77. Since the first embodiment uses label 24 for a broad-band light source, I searched for a reference to a label 124 in the '516 patent specification, but I did not find one. I was also unable to find a discussion of a broad-band light source with regard to the second embodiment.

78. I also searched for examples of diffusers in the embodiment of FIGS. 12-13, which the '516 patent names "a third embodiment 210." '516 patent, 3:12, 12:42. I searched for a reference to a label 224 in the '516 patent specification, but I did not find one. I was also unable to find a discussion of a broad-band light source with regard to the third embodiment.

1. Claim construction of Claim Term #6.

79. Based on the foregoing, in my opinion the '516 patent requires that diffusers be used only in receptacles having narrow-band light sources. Based on the foregoing, I propose the following construction for Claim Term #6:

No.	Claim Term or Phrase	Claim	Defendant's Proposed Construction or Position
6.	"a diffuser positioned within at least some of the plurality of lamp receptacles"	1, 14	a diffuser positioned within at least some of the holes of the member that contain narrow-band light sources

V. DATA AND OTHER INFORMATION CONSIDERED

80. The information I considered in forming my opinions to date is listed in **Exhibit C** to this report.

VI. EXHIBITS AND SCHEDULES TO BE USED AS A SUMMARY OF SUPPORT FOR MY OPINIONS

81. This report includes some exhibits and schedules that may be used to support my opinions. I reserve the right, however, to supplement these materials with additional summaries or exhibits to be used for claim construction.

VII. TESTIMONY

82. None.

VIII. COMPENSATION FOR THE STUDY AND TESTIMONY

83. Compensation for the study and testimony in this case have been or will be charged at an hourly billing rate of \$250 per hour. Out-of-pocket expenses are billed as incurred. My work on this case is anticipated to be ongoing. I have no financial interest in the outcome of this case and the compensation received from this case is not contingent upon my opinions or performance.

IX. PROFESSIONAL ASSISTANCE

84. None.

X. SIGNATURE

85. I declare under penalty of perjury of the laws of the United States that the forgoing is true and correct to the best of my knowledge.

Dated: October 17, 2022

 Digitally signed by Joseph Talghader
DN: cn=Joseph Talghader, o=University of
Minnesota, ou=ECE, email=joey@umn.edu,
c=US
Date: 2022.10.17 17:36:47 -05'00'

Joseph John Talghader, Ph.D.

EXHIBIT INDEX

Exhibit A	Curriculum Vitae of Prof. Joseph J. Talghader
Exhibit B	Issued U.S. Patents
Exhibit C	Documents Considered
Exhibit D	U.S. Patent 8,901,516 (“’516 Patent)
Exhibit E	Provisional Patent Application No. 61/379,282 (“Provisional Application”) which the ‘516 Patent claims for benefit
Exhibit F	U.S. Patent Application Publication No. US 2009/0268426 A1 (“Pohlert”)
Exhibit G	U.S. Patent 6,454,437 (“Kelly”)
Exhibit H	English Translation of Japanese Patent No. JP 10-040330 A (“Nomura”) in the File History of the ‘516 patent at Spectral _0000752-0000759
Exhibit I	U.S. Patent Application Publication No. 2004/0245170 A1 (“Furze”)
Exhibit J	U.S. Patent Application Publication No. 2004/0121175 A1 (“Flexman”)
Exhibit K	U.S. Patent 5,984,494 (“Chapman”)
Exhibit L	https://www.merriam-webster.com/dictionary/surrounding last visited October 17, 2022.
Exhibit M	IEEE Standard C37.20.10-2016 IEEE Standard Definitions for AC (52 kV and below) and DC (3.2 kV and below) Switchgear Assemblies at p. 24. Definition of “surface-mounted-device.”