

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BOE Technology Group Co., LTD.
Petitioner

v.

Optronic Sciences LLC
Patent Owner

Inter Partes Review No.: IPR2024-01133

**PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE TO
PETITION FOR INTER PARTES REVIEW OF U.S. PATENT 9,263,509**

TABLE OF CONTENTS

	Page
I. Introduction.....	1
II. Person of Ordinary Skill in the Art (POSITA).....	1
A. Patent Owner's POSITA Definition Is Flawed.....	1
B. Dr. Baker is a POSITA.....	3
III. Patent Owner's Arguments On Hindsight Fail.....	4
A. There Is No Hindsight on the Record	4
B. Petitioner's Positions Are Consistent.....	5
C. Patent Owner Is Wrong on the Motivations of a POSITA and what a POSITA Would Have Done	5
IV. Patent Owner's Arguments On Objective Indica Of Nonobviousness Fail	8
V. Claim Construction.....	8
A. "auxiliary"	8
B. "electrode"	11
VI. Ground 1 (Weaver § 102, Claims 1-5, 9, 12-13).....	15
VII. Ground 2 (Weaver, Lee053 § 103, Claims 6-8).....	16
A. There Are No Deficiencies of Weaver for Lee053 to Cure	16
B. There Is No Hindsight or Lack of Motivation to Combine	16
VIII. Ground 3 (Weaver, Song § 103, Claims 6-8).....	17
A. There Are No Deficiencies of Weaver for Song to Cure	17
B. There Is No Hindsight or Lack of Motivation to Combine	17
IX. Ground 4 (Weaver, Lee149 § 103, Claims 10-11).....	18
A. There Are No Deficiencies of Weaver for Lee149 to Cure	18
B. There Is No Hindsight or Lack of Motivation to Combine	19
X. Ground 5 (Weaver, Bae § 103, Claims 10-11).....	21
A. There Are No Deficiencies of Weaver for Bae to Cure	21
B. There Is No Hindsight or Lack of Motivation to Combine	22

XI.	Ground 6 (Weaver, Gupta or Han § 103, Claims 1-5, 9, 12-13).....	24
A.	There Are No Deficiencies of Weaver for Gupta or Han to Cure	25
B.	There Is No Hindsight or Lack of Motivation to Combine	25
1.	Han Is Analogous Art	26
2.	A POSITA Would Have Been Motivated by Han to Implement a Parallel Connection.....	27
3.	Gupta Teaches a Supplementary Electrode	27
4.	Gupta Teaches the Proposed Combination.....	27
XII.	Grounds 7-10	28
XIII.	Conclusion	28

INDEX OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 9,263,509
1002	File History of U.S. Patent No. 9,263,509
1003	Declaration of R. Jacob Baker, Ph.D., P.E.
1004	U.S. Patent Publication No. 2004/0079945 ("Weaver")
1005	U.S. Patent Publication No. 2012/0162053 ("Lee053")
1006	U.S. Patent Publication No. 2014/0183502 ("Song")
1007	Korean Patent Publication No. 10-2014-0088369 ("Song KR")
1008	Certified Translation of Song KR
1009	U.S. Patent 9,088,003 ("Gupta")
1010	U.S. Patent Publication No. 2011/0248309 ("Han")
1011	U.S. Patent Publication No. 2009/0015149 ("Lee149")
1012	U.S. Patent Publication 2006/0119259 ("Bae")
1013	Wiley Electrical and Electronics Engineering Dictionary (2004)
1014	Docket Navigator Report (highlighted)
1015	Patent Owner Opening Claim Construction Brief, June 3, 2025 U.S. District Court 2:23-CV-00549
1016	May 13, 2025, Deposition Transcript of Dr. Eric Bretschneider, Claim Construction Proceeding, U.S. District Court 2:23-CV- 00549
1017	July 15, 2025, Deposition Transcript of Dr. Eric Bretschneider, IPR2024-01132
1018	Webster's New World Dictionary (1994)
1019	U.S. Patent 5,894,293
1020	Declaration of R. Jacob Baker, Ph.D., P.E. in Support of Petitioner's Reply
1021	Court's Preliminary Constructions – Markman Hearing July 23, 2025, U.S. District Court 2:23-CV-00549-JRG

I. Introduction

Patent Owner's Response (Paper 24, "POR") fails to rebut the Petition's (Paper 1, "Pet.") showing claims 1-13 are anticipated or unpatentable.

II. Person of Ordinary Skill in the Art (POSITA)

A. Patent Owner's POSITA Definition Is Flawed

Patent Owner ("PO") asserts a POSITA for the 509 patent "would have at least a Bachelors' degree *in a field of engineering or physics* and at least two years of professional experience related to the design and manufacture of LED or OLED pixels for flat panel displays." POR, 10. The PO's definition should be rejected.

A bachelor's degree in (unspecified) engineering incorrectly encompasses engineering fields clearly having nothing to do with displays, such as biomedical, civil, chemical or environmental engineering. This omission is notable, as PO's expert has his degrees in chemical engineering, not electrical engineering.

EX2026, ¶¶25-26. A POSITA for the 509 patent would have knowledge in the design of optoelectronic circuits at least at the system level where components such as LEDs and transistors are put together to form a working optoelectronic circuit (i.e., one that converts current flow to generated light). EX1020, ¶7. For example, the circuit design and pixel layout as seen in Figs. 1-2 of the 509 patent would require circuit design knowledge. This knowledge would be attained by

obtaining a degree having a required curriculum of circuitry and electronics courses such as Electrical Engineering. *Id.*

This knowledge would not fall within the scope of a person having knowledge in chemical engineering at any level. Simply knowing about the chemical properties used in the layers of the optoelectronic circuit would not be sufficient to understand the circuit design and layout of a pixel. This is especially the case for the 509 patent, where the alleged novelty is adding an auxiliary electrode electrically connected to the first electrode layer. *Id.*, ¶19; EX1017, 32:13-19. Therefore, PO's expert lacks the requisite degree of a POSITA for the 509 patent. A thorough review of his background also evidences that he lacks the experience necessary to be a POSITA, and specifically circuit design or circuit layout experience. See EX1020, ¶¶18-19. PO's expert is clearly not a POSITA.

Second, separately identifying "design" and "manufacture" ignores the reality that design experience in this field necessarily involves manufacturing experience, because designers must design products that can be manufactured. Circuit designers typically work closely with fabs in an iterative manner to test, modify, and finalize product designs for production. EX1020, ¶8. This is evidenced by PO's expert's repeated characterization of his experience: "designed and transferred into manufacturing" various products. EX2026, ¶11. He admitted

“transfer to manufacture” is within the scope of PO’s “and manufacturing” portion of its POSITA definition. EX1017, 56:18-22.

Finally, PO criticizes Petitioner’s definition of POSITA for not requiring the professional experience to be more focused on the design of LED or OLED pixels for flat panel displays. Yet, the alleged novelty of the 509 patent is not the design of the light emitting portion of the pixel, but rather adding an auxiliary electrode electrically connected to the pixel’s anode (i.e., adding a connected wire), which can be coordinated through parallel connection to reduce the resistance of the anode. EX1001, 6:4-9; EX1017, 32:13-19. The problem and solution are common to any electrical circuit, and to any optoelectronic system irrespective of the light emitting mechanism. EX1020, ¶9.

Regardless, both experts admit their opinions would not change under either of the POSITA definitions. EX1017, 44:10-14; EX1020, ¶10.

B. Dr. Baker is a POSITA

PO and its expert argue Dr. Baker is not a POSITA because he “does not have experience in the design and manufacture of LED and OLED displays.” POR, 10. Yet, none of the claims specifically claim a light emitting device that is an LED, OLED, or even “diode.” In fact, the terms “diode,” “LED,” or “OLED” are not found anywhere in the ‘509 patent’s specification. Not claiming the type of light emitting device used is understandable. The 509 patent is about the circuit

design and physical layout of a pixel. The 509 patent claims are agnostic to the type of light emitting device the pixel uses, so long as it includes a light emitting layer. EX1020, ¶12.

Dr. Baker has extensive experience in flat panel display design, including at the pixel level. See EX1020, ¶¶13, 16-17 (including his own patent on a flat panel display he designed back in the 1990's; EX1019).

III. Patent Owner's Arguments On Hindsight Fail

A. There Is No Hindsight on the Record

PO faults Dr. Baker for reviewing the 509 patent first, before looking at the prior art to form an opinion about what was obvious, alleging that makes him infected with hindsight. POR, 13. PO's argument defies logic, as this Board would be unqualified to decide obviousness if it dared to look at the 509 patent before looking at the prior art, and patent examiners would be too because they looked at the claims first so as to know what prior art to search for. Tellingly, PO's own expert looked at the 509 patent first before looking at the prior art and rendering opinions on obviousness. EX1017, 13:6-11.

The same illogic is argued with respect to Dr. Baker's deposition, where he was asked what modifications were necessary and obvious (to meet the claim language), and then faulted Dr. Baker for looking at the claims. POR, 13-14. The answers reflect the order of counsel's questioning, not the thought process by

which Dr. Baker reached his original conclusions (for which he was never asked).

As explained in more detail below, counsel failed to ask a single question on the paragraphs containing Dr. Baker's opinions explaining how obvious combinations would be implemented for Grounds 4 and 5.

Finally, the POR is riddled with arguments that hindsight was used to formulate the obviousness combinations. This handwaving can be ignored, because these arguments fail to address the actual identified motivations to combine the references.

B. Petitioner's Positions Are Consistent

PO and its expert have a fundamental misunderstanding of the design work performed by a POSITA. POR, 14-17. As explained below with respect to Grounds 2 and 3, PO's arguments fail.

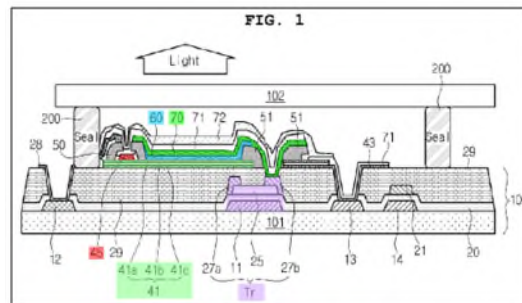
C. Patent Owner Is Wrong on the Motivations of a POSITA and what a POSITA Would Have Done

PO argues repeatedly without hindsight, there is no reason to modify Weaver to reduce resistance other than simply changing the width of the bus line (i.e., a POSITA would simply have made it "a little wider"). POR, 17, 19-20, 34, 41, 48. This argument evidences a profound ignorance of the basic realities of light emitting displays: there is a constant effort to maximize the number of pixels in the display for high resolution. EX1020, ¶34. Reducing the resistance of the

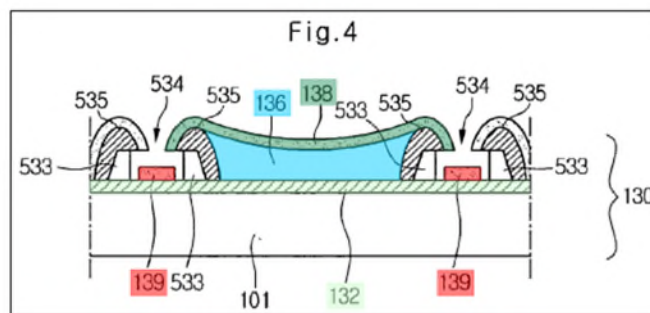
conductors supplying power to pixels will reduce the voltage variation between the pixels in the display and thus improve image uniformity. *Id.*

A POSITA would have understood this is desirable and there is only so much space in and around the pixels to route all the various lines to the pixels (which often number in the millions). Therefore, the various lines supplying power to a pixel can only be made so wide. *Id.*, ¶35. A POSITA would have understood when making the Weaver device, the various lines would already be as wide as they can be while providing the desired density of pixels. The circuit design of a pixel can always benefit from decreased pixel resistance, beyond what can be provided by existing possible line widths. *Id.* Making millions of lines “a little wider” would result in an unwanted reduction in pixel density and resolution. A POSITA would have understood by putting wires in parallel, for example stacked on top of each other in full or partially, the pixel resistance can be reduced without reducing pixel density and that this is desirable. *Id.* Therefore, hindsight was not used.

This reality of display devices is evidenced by the prior art of record. Lee149 discloses an electrode pattern 45 in addition to its first electrode 41 that “serves to lower the resistance of the first electrode 41.” EX1011, [0038], Fig. 1.



Bae discloses auxiliary electrodes 139 in contact with first electrode 132 which “serves to lower the resistance of first electrode 132.” EX1012, [0059], Fig. 4



These prior art references evidence the reality of displays: the lines can be made only so wide, and there is a need to lower pixel resistance beyond what available line widths can provide. EX1020, ¶¶34-40.

The fallacy of PO's argument is laid bare when applied to the 509 patent itself: there would be no need to add an auxiliary electrode connected to the first electrode layer to lower pixel resistance given the first electrode layer could simply be made "a little wider." *Id.*, ¶41. Remarkably, PO's expert simply threw up his hands and said he had no opinion on whether reduced resistance could be achieved by just making the first electrode layer of the 509 patent larger in cross-section, yet maintained a POSITA has no need to do anything more complicated than

increasing size and/or change material to address resistance. EX1017, 194:10-

195:6; 197:20-198:7; 190:2-11. His conflicting positions confirm PO's argument here is meritless.

IV. Patent Owner's Arguments On Objective Indicia Of Nonobviousness Fail

PO does not identify a single objective indicia of nonobviousness that applies to the 509 patent. POR, 20-21.

V. Claim Construction

A. "auxiliary"

The Petition sets forth why "auxiliary electrode" should be construed either broadly as "supplemental electrode" or narrowly as "supplemental electrode to reduce the total resistance of the pixel structure." Pet., 5-8.

PO argues the term "auxiliary" should be afforded its plain and ordinary meaning, but then introduces a negative limitation: "which does not include primary and essential." POR, 25. This construction should be rejected because it not supported by the intrinsic and extrinsic evidence and is indefinite. EX1020, ¶¶21-25.

In the related district court litigation, PO conceded Petitioner's construction of "supplemental" is correct: "There is no dispute that the plain meaning of 'auxiliary' is 'supplemental.'" Ex. 1015 (Patent Owner Opening Claim Construction Brief), 22. Notwithstanding PO's concession, it does not propose a

construction that includes “supplemental,” opting instead to include a groundless negative limitation. POR, 22, 25. PO cites to no direct intrinsic support for this construction, which is not surprising since the words “primary” and “essential” (and any form of the word “function”) are not found in the 509 patent.

Instead, PO cites to the function of reducing total resistance, an alleged enhancement to the “function or characteristic” of the first electrode layer to provide power to the pixel. POR, 24. This argument fails. First, the specification twice disclaims the invention is limited to this function. Ex. 1001, 6:4-10; 7:52-57. Second, other language cited by the PO merely says the auxiliary electrode “**can be**” coordinated to reduce resistance, leaving PO reading in limitations from the specification that are unambiguously optional. POR, 23. Third, PO’s expert admitted there is nothing in claim 1 that requires the auxiliary electrode reduce the resistance of the first electrode layer, or requires a parallel arrangement that would reduce resistance. Ex. 1016, 45:15-18; 53:19-21. Fourth, the 509 patent is silent as to which of the first electrode layer and the auxiliary electrode is physically connected to power. PO’s expert had no opinion on what connects to the power line in the 509 patent. EX1017, 111:6-16. Therefore, it is pure speculation by PO to conclude that without the auxiliary electrode, the first electrode layer would still result in an operable pixel. POR, 24.

Extrinsic evidence confirms the plain meaning of “auxiliary” is “supplemental” (i.e., additional) and is not limited to any particular type of supplemental functionality. Pet., 6. Remarkably, PO argues the auxiliary electrode “is not simply an **additional** electrode” in defiance of its own dictionary that defines “auxiliary” as “**additional**; supplementary; reserve.” Compare POR, 23 to EX2015, 94. In fact one of the definitions of “supplementary” in Petitioner’s own dictionary is “**additional**.” EX1018, 1345. Even PO’s expert slipped and admitted “the claims require an ‘auxiliary electrode’ **in addition to** a ‘first electrode layer’ and a ‘second electrode layer’” confirming Petitioner’s construction. EX2026, ¶98 (emphasis added).

PO and its expert argue the plain meaning of “auxiliary” and the specification “tell a POSITA that the ‘function or characteristic’ being supplemented by the ‘auxiliary electrode’ is the ‘function or characteristic’ of the first electrode layer.” POR, 24. See also EX1017, 72:1-4. Yet, their proposed construction does not mention the first electrode layer, nor does it identify which of its functions or characteristics are being supplemented. Even worse, at his deposition, the only function PO’s expert could identify was reduced resistance which was disclaimed in the specification. EX1017, 91:20-92:15; Ex. 1001, 6:4-10. PO’s expert could not even answer the simple question of whether or not the

parallel connection disclosed in the 509 patent to reduce resistance involves the auxiliary electrode. EX1017, 99:6-105:21.

PO's proposed construction should also be rejected because it is indefinite. There is nothing in the PO's proposed construction, or the 509 patent specification, or even anything allegedly known in the art, that would dictate with reasonable certainty what functionalities or characteristics rise to the level of being "primary and essential." EX1020, ¶25.

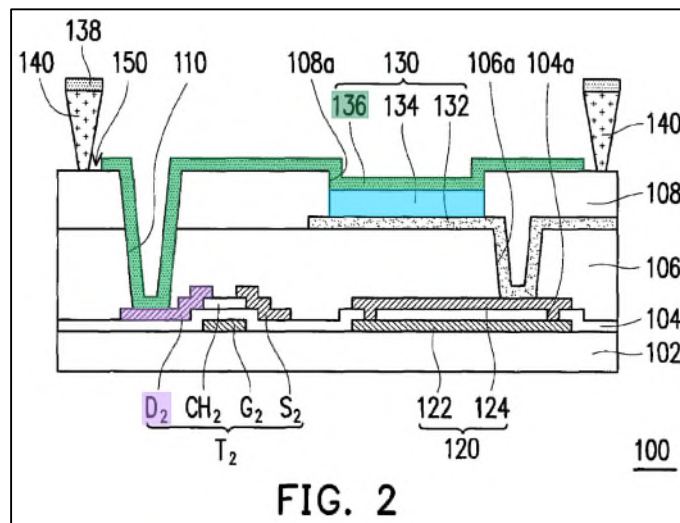
It should be noted the Petitioner anticipated PO's litigation driven strategy and provided an alternate construction for "auxiliary electrode" ("supplemental electrode to reduce the total resistance of the pixel structure"), and provided Grounds 6-10 establishing invalidity under this alternate construction. The POR is silent as to this alternate construction, which is notable because the POR provides no argument that a supplemental electrode to reduce pixel resistance is unknown in the prior art.

B. "electrode"

PO argues, consistent with its proposed construction in the co-pending district court litigation, "the term 'electrode' should be afforded its plain and ordinary meaning, *which means end structure of a conductor for making*

electrical contact.”¹ POR, 25. This construction should be rejected because it directly contradicts the use of this term in the 509 patent. EX1020, ¶¶27-33.

The 509 patent uses the term “electrode” for entire conductors, not just end structures for making electrical contact. For example, the light emitting device 130 is described as including a “second electrode layer 136” that extends between and electrically connects to the light emitting layer 134 and the drain D₂ of the active device T₂. EX1001, 5:25-36; Fig. 2.

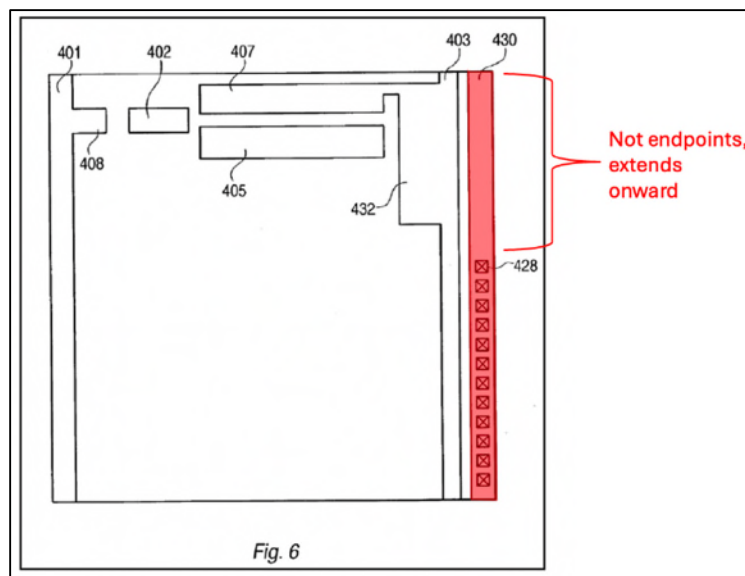


Yet, the entirety of layer 136 is referred to as “second electrode layer.” EX1001, 5:25-36; Fig. 2. The 509 patent does not refer to only the end structures of layer 136 making electrical contact with drain D₂ and light emitting layer 134 as

¹ It should be noted PO dropped this construction from the co-pending district court Markman briefing. EX1015, 22.

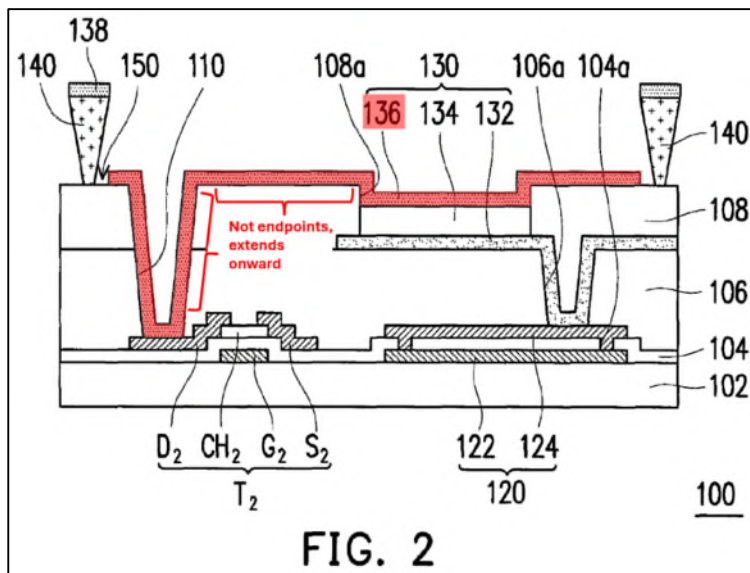
“electrode layer,” with a conductor therebetween. The same is true for first electrode layer 132. *Id.*, 4:35-42. Therefore, PO is wrong that “‘electrode’ is used as an end point, but not the road to get to an end point.” POR, 26. The labeling and description of second electrode layer 136 and first electrode layer 132 in the 509 patent confirm Plaintiff's construction cannot be correct.

PO's arguments under Ground 1 directly contradict its construction. PO argued Weaver's bus line 430 is not an electrode because it includes far more than just the end structure of a conductor for making electrical contact, illustrated by the following drawing annotated by PO:



POR, 32.

Yet, applying this same argument to the 509 patent embodiments would mean the “second electrode layer 136” is not an electrode layer (see Fig. 2 of the 509 patent below annotated with PO's argument):



Comically, PO's expert had no opinion on how many electrodes are shown as part of layer 136. EX1017, 127:19-128:12.

PO's construction also fails for the first auxiliary electrode 120 and second auxiliary electrode 460. In each case the entirety of the conductor is referred to as "electrode." Ex. 1001, 4:5-20; 7:1-16; Figs. 2-6. PO does not identify a single conductor disclosed in the 509 patent for which any of the electrodes or electrode layers are an end structure. PO's expert could not identify the conductor for which the auxiliary electrode is an end structure. EX1017, 123:19-124:16. There is a simple reason for this: no such conductors exist in the 509 patent.

The 509 patent makes reference to "an electrode end E1" and "an electrode end E2." 509 patent, 3:26-31. If "electrode" was only an end structure, then the 509 patent would not use the term "electrode end."

A POSITA would have understood the plain and ordinary meaning of electrode is a conductor. EX1020, ¶33. This is consistent with the Wiley Electrical and Electronics Engineering Dictionary, IEEE Press, 2004, that broadly defines electrode as “A conductor which serves to deliver, receive, collect, emit, deflect, or control electric charge carriers.” Ex. 2012, 237.

The ultimate proof the Board should reject PO's construction is the fact that its own expert not only had ***no opinion*** on whether any of the electrode terms of claims 1 and 10 meet his definition of “electrode,” but he even admitted never considering it! EX1017, 124:17-125:22; 126:7-11; 127:6-10; 128:13-129:18.

VI. Ground 1 (Weaver § 102, Claims 1-5, 9, 12-13)

PO's sole argument claims 1-5, 9 and 12-13 are not anticipated by Weaver rests entirely on its erroneous constructions for “auxiliary” and “electrode.” POR 27-33. There is no argument claims 1-5, 9 and 12-13 are valid under the proper constructions of “auxiliary” and “electrode” as applied by Petitioner and its expert, thus waiving such a defense. EX1017, 141:4-14 (PO's expert did not apply Dr. Baker's construction of “auxiliary”). Should the Board reject PO's constructions

(which it should, see §§V.A and V.B), then it is undisputed between the parties

that claims 1-5, 9 and 12-13 are anticipated by Weaver. See Pet., 11-29.²

VII. Ground 2 (Weaver, Lee053 § 103, Claims 6-8)

A. There Are No Deficiencies of Weaver for Lee053 to Cure

PO argues Lee053 does not cure the fact that Weaver's bus line 430 does not meet PO's constructions of "auxiliary" and "electrode." POR, 33. That argument should be rejected. See §§V.A, V.B, VI.

B. There Is No Hindsight or Lack of Motivation to Combine

PO and its expert argue a POSITA would not combine Weaver and Lee053 because it would involve changing the process. POR, 33-35. PO and its expert do not understand the difference between process changes and changes in the layout of a circuit. Changing the **thickness** of a layer, in a process flow, is a process change that the circuit designer implementing the layout of a pixel may have no

² In the related district court litigation, the Court issued a preliminary construction at the July 23, 2025 claim construction hearing for "auxiliary electrode" as "electrode that works in unison with another electrode." EX1021, p.3. Weaver's bus line 430 meets this construction, because it is an electrode that is electrically connected to, and therefore works in unison with, another electrode, namely anode 406. EX1020, ¶59.

control over. EX1020, ¶45. Changing the lithography of existing layers to provide additional components from the same layers is a layout change that a POSITA would have been able to perform without changing the process. *Id.*

In his original declaration (and repeated in the Petition), Dr. Baker set forth how the modifications to the Weaver device to incorporate the teachings of Lee053 could be implemented *using the “same layers” already formed in the Weaver device*. EX1003, ¶130; Pet., 33-34. No process change is involved. EX1020, ¶¶46-47. Therefore, PO's argument fails.

Finally, PO argues there is no reason to modify Weaver if changing the width of the bus line alone would accomplish the same thing. POR, 34. This argument fails. See §III.C.

VIII. Ground 3 (Weaver, Song § 103, Claims 6-8)

A. There Are No Deficiencies of Weaver for Song to Cure

PO argues Song does not cure the fact Weaver's bus line 430 does not meet PO's constructions of “auxiliary” and “electrode.” POR, 35-36. That argument should be rejected. See §§V.A, V.B, VI.

B. There Is No Hindsight or Lack of Motivation to Combine

PO argues the combination of Weaver and either Lee053 or Song would not result in the same modification to Weaver without hindsight mapping due to the differences between Song and Lee053. POR, 36-38. This argument fails because

Song and Lee053 both teach the well-known technique of forming electrodes having multiple interconnected electrode layers. Lee teaches second power wiring 135 interconnected with dummy wiring 120. Song teaches an auxiliary electrode AE with different portions SE1, SE2 and SE3 formed as different layers. Therefore, these general teachings would result in the same modification to Weaver. EX1020, ¶50.

PO repeats its argument that a POSITA would not make the proposed modification to Weaver and Song because it involves changing the process. POR, 38-39. That argument fails for the same reasons it fails for Weaver combined with Lee053. Dr. Baker set forth in ¶157 how the modifications to the Weaver device to incorporate the teachings of Song could be implemented *using the “same layers” already formed in the Weaver device*. EX1003, ¶157; Pet., 47-48. See also §VII.B.

IX. Ground 4 (Weaver, Lee149 § 103, Claims 10-11)

A. There Are No Deficiencies of Weaver for Lee149 to Cure

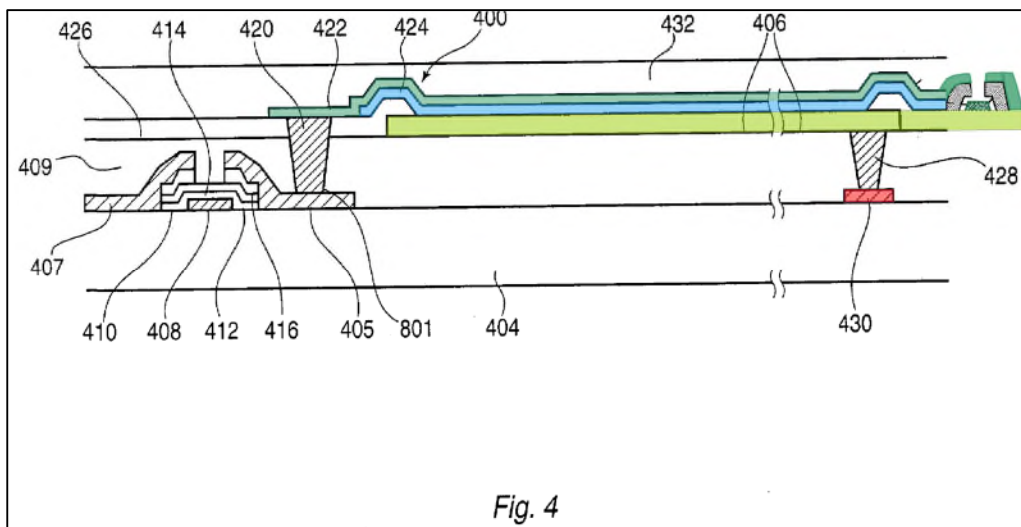
PO argues Lee149 does not cure the fact Weaver's bus line 430 does not meet PO's constructions of “auxiliary” and “electrode.” POR, 39. That argument should be rejected. See §§V.A, V.B, VI.

B. There Is No Hindsight or Lack of Motivation to Combine

PO faults the petition for lacking an illustration of the resulting combination, alleging the petition's paragraph description is conclusory. POR, 39. This criticism is unfounded. EX1020, ¶¶53. The petition describes in detail how the modification would be implemented:

“The modification to Weaver could be implemented, for example, by forming a contact window with an undercut (similar to that of Lee's buffer layer 50) over the anode 406 before forming the cathode 422, so that when the conductive layer for cathode 422 is formed, it would result in a first portion of the conductive layer as the cathode 422 of OLED 400 and a separate second portion of the conductive layer in the contact window as the second auxiliary electrode at a side of the OLED 400.” Pet., 59. See also EX1003, ¶183.

The simplicity of the modification is evident from the above description (i.e., literally form Lee149's buffer layer 50 with its contact window on anode 406 of Weaver, so a portion of layer 422 is separately formed in the contact window). A simple copy and paste could suffice, as illustrated below.



The description sets forth exactly how the modification is implemented.³

Conspicuously, PO and its expert provide no argument or rebuttal to the modification identified at page 59 of the Petition and in paragraph 183 of Dr. Baker's declaration. See EX1017, 161:13-162:13 (PO's expert admitting he never addressed paragraph 183 of Dr. Baker's declaration). Therefore, the Board should consider the above argument (the obviousness of modifying Weaver in view of Lee149) as unrebutted.

Rather than rebut the obviousness argument in the Petition and Dr. Baker's declaration, PO hides entirely behind an diversionary deposition side show by PO's counsel at Dr. Baker's deposition. In this deposition, counsel drew modifications to Weaver's drawings on the screen, asking Dr. Baker in a remote location to bless them on the fly, and faulting Dr. Baker for then following the claims at issue. POR, 39-43. PO's argument fails to move the needle. First, it was counsel for PO that drew Exhibits 9 and 11 during Dr. Baker's deposition. EX2029, 277:14-278:4. Counsel never asked Dr. Baker to make drawing

³ The resulting second portion of the conductive layer that is formed in the contact window is an electrode that works in unison with another electrode, namely anode 406 (district court's preliminary construction of "auxiliary electrode"). EX1020, ¶59.

annotations himself to show his actual opinions in his declaration. Second, Dr.

Baker repeatedly objected to the process of counsel making drawings during a deposition, admitting he (Dr. Baker) missed mistakes made in counsel's drawings.

EX2028, 208:8-23, 211:24-212:15. Third, at no time in the deposition did counsel ever ask about, refer to, or follow the modifications identified in ¶183 of Dr.

Baker's declaration (corresponding to the above paragraph from p. 59 of the petition), or ask any questions regarding how Dr. Baker actually reached those stated opinions. Fourth, PO's hindsight arguments fail because they are based on the order of counsel's questions, not on how Dr. Baker originally arrived at any of his opinions. POR, 41-42. Fifth, Dr. Baker testified if he were creating such drawings, not only would he have not drawn them the way counsel did, but in fact he wouldn't have even used the starting drawing selected by counsel. EX2029, 278:5-280:22 (for Exhibit 9); 281:6-284:11 (for Exhibit 11). Therefore, PO's arguments based upon drawings created by PO's counsel are divorced from the actual opinions of Dr. Baker (which PO conspicuously avoids in their entirety).

X. Ground 5 (Weaver, Bae § 103, Claims 10-11)

A. There Are No Deficiencies of Weaver for Bae to Cure

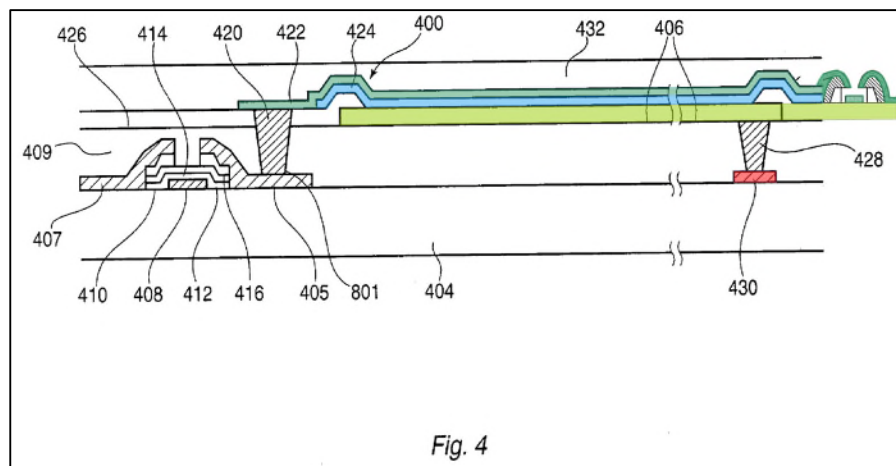
PO argues Bae does not cure the fact that Weaver's bus line 430 does not meet PO's constructions of "auxiliary" and "electrode." POR, 43. That argument should be rejected. See §§V.A, V.B, VI.

B. There Is No Hindsight or Lack of Motivation to Combine

PO faults the petition for lacking an illustration of the resulting combination, alleging the petition's paragraph description is conclusory. POR, 43-44. This criticism is unfounded. EX1020, ¶55. The petition describes in detail how the modification would be implemented:

“The modification to Weaver could be implemented, for example, by forming a contact window with an undercut (similar to that of Bae's buffer layer 535) over the anode 406 before forming the cathode 422, so that when the conductive layer for cathode 422 is formed, it would result in a first portion of the conductive layer as the cathode 422 of OLED 400 and a separate second portion of the conductive layer in the contact window as the second auxiliary electrode at a side of the OLED 400.” Pet., 67. See also EX1003, ¶202.

The simplicity of the modification is evident from the above description, (i.e., literally form Bae's buffer layer 535 with its contact window on anode 406 of Weaver, so a portion of layer 422 is separately formed in the contact window). A simple copy and paste could suffice, as illustrated below.



The description sets forth exactly how the modification is implemented.⁴

Conspicuously, PO and its expert provide no argument or rebuttal to the modification identified at page 67 of the Petition and in paragraph 202 of Dr. Baker's declaration. See EX1017, 172:4-22 (PO's expert admitting he never addressed paragraph 202 of Dr. Baker's declaration). Therefore, the Board should consider the above argument (the obviousness of modifying Weaver in view of Bae) as unrebutted.

Rather than rebut the actual obviousness argument in the Petition and Dr. Baker's deposition, PO once again hides entirely its diversionary deposition side show by PO's counsel (just as it does for Ground 4). POR, 44-45. Again, this fails to move the needle for the same reasons as noted for Ground 4. First, it was counsel for PO that drew Exhibit 10. Second, Dr. Baker repeatedly objected to the process. Third, at no time did counsel ask about, refer to, or follow the modifications identified in ¶202 of Dr. Baker's declaration (corresponding to the above paragraph from p. 67 of the petition), or ask any questions regarding how

⁴ The resulting second portion of the conductive layer that is formed in the contact window is an electrode that works in unison with another electrode, namely anode 406 (district court's preliminary construction of "auxiliary electrode"). EX1020, ¶59.

Dr. Baker actually reached those stated opinions. Fourth, PO's hindsight arguments fail because they are based on the order of counsel's questions, not on how Dr. Baker originally arrived at his opinions. POR, 44-45. Fifth, Dr. Baker testified if he were creating such a drawing, not only would he have not drawn it the way counsel did, but in fact he would not have included much of the structure drawn by counsel. EX2029, 286:9-288-13.

Therefore, PO's arguments based upon the drawing created by PO's counsel are divorced from the actual opinions of Dr. Baker (which PO conspicuously avoids in their entirety).

XI. Ground 6 (Weaver, Gupta or Han § 103, Claims 1-5, 9, 12-13)

PO argues if Petitioner failed to carry its burden under Ground 1 under Petitioner's broadest constructions, there is no need for the PTAB to consider redundant grounds 6-10 which use narrower constructions. POR, 45. This argument defies logic. The broad construction of "auxiliary electrode" applies to Grounds 1-5, and the narrow construction applies to Grounds 1-10. Pet., 5. If the Board adopts only the narrow construction and finds that Weaver does not meet that construction, Grounds 6-10 rely on additional prior art references relating to this claim term. *Id.*, 72-77.

A. There Are No Deficiencies of Weaver for Gupta or Han to Cure

PO argues neither Gupta or Han cure the fact that Weaver's bus line 430 does not meet PO's constructions of "auxiliary" and "electrode." POR, 46. That argument should be rejected. See §§V.A, V.B, VI.

B. There Is No Hindsight or Lack of Motivation to Combine

PO argues implementing the solution of Gupta or Han in Weaver to lower resistance is inconsistent with the teachings of Weaver, which also discusses non-uniformities. POR, 46-47. This argument fails because PO ignores the stated problems and motivations: higher resistance would ***increase the IR-drop and power consumption*** to operate the OLEDs, and the solution as taught in Gupta and Han is connecting the auxiliary electrode and anode in parallel ***so as to reduce the total resistance of the pixel structure that includes the OLED***. Pet., 75-76. This is entirely consistent with the teachings of Weaver, which addresses reducing voltage drops across the OLED by using highly conductive material for the anode and bus lines. *Id.*, 76. PO fails to address the motivations to combine identified in the petition.

PO argues the annotated circuit schematics of the Petition do not depict any corresponding structure, quoting Petitioner's expert that schematics by themselves do not convey specific structure. POR, 48. The fallacy of this argument is that the petition and Dr. Baker do not rely solely on schematics. Rather, the

modification is described in terms of a physical change to the structure of Weaver: modify Weaver such that its bus line 430 is connected in parallel with its anode 406 (entirely or over just a portion of anode 406) to its voltage supply line VDD to reduce the total resistance of the pixel structure. Pet., 75-77. The schematics are only provided to illustrate the electrical connections involved.

Once again PO and its expert argue that lowering resistance could have been done by increasing the width of bus line 430. This argument fails. See §III.C.

1. Han Is Analogous Art

Han is analogous prior art to Weaver and the 509 patent because each relates to pixel devices with a light emitting layer disposed between an anode electrode layer and a cathode electrode layer, as well as the surrounding layers and circuits to operate the light emitting devices. Pet., 75.

PO argues Han is not analogous art because its OLED devices are larger than the pixels in a display. Yet, the problems with OLEDs (high resistance of their anodes and cathodes causing unwanted IR drop) and solutions (adding electrodes in parallel to and pixel's anodes and cathodes) exist at any size, and are specifically identified in Han. EX1010, [0033] (discussing parallel connection to reduce IR-drop); EX1020, ¶56.

2. A POSITA Would Have Been Motivated by Han to Implement a Parallel Connection

PO argues a POSITA would have only considered the precise branched layout of Han's device when modifying Weaver. POR, 52. The glaring omission here is that PO does not dispute that Han discloses subsidiary electrodes 750, 770 electrically connected to anode 720 "in parallel" to reduce IR drop. Pet., 74-75. That teaching is what provides the motivation to modify Weaver to connect its anode and bus line in parallel to lower IR drop.

3. Gupta Teaches a Supplementary Electrode

PO attempts to exploit Gupta's characterization of element 238 as a "resistor," arguing a resistor is not an electrode. POR, 52-53. An electrode is simply a conductor. See §V.B. Moreover, Gupta states resistor 238 may be formed of a conductive mesh or strip, and connected to the anode in parallel to reduce sheet resistance. Pet., 73, EX1009, 7:42-43 and 4:55-60. PO's expert even admitted that everything has a resistance associated with it, and Gupta's conductive strip is a conductor. EX1017, 184:15-186:2.

4. Gupta Teaches the Proposed Combination

PO argues Gupta teaches that resistor 238 is a mesh, and that in no way suggests that Weaver's bus line should be put in parallel with Weaver's anodes. PO is wrong. First, Gupta expressly discloses: "The resistor 238 may be formed of a conductive mesh *or strip*." EX1009, 7:42-43 (emphasis added). A strip of

conductive material is a conductor, and therefore an electrode. EX1020, ¶¶57-58.

Second, even if Gupta only disclosed a mesh configuration (which it does not), that mesh configuration is connected “in parallel with the cathode sheet resistance 234A, such that the total resistance between cathode 238 and node 240 is reduced.” EX1009, 7:39-42. This parallel connection is precisely the obvious modification that is proposed for Weaver.

XII. Grounds 7-10

There are no arguments presented in the POR to rebut. POR, 55.

XIII. Conclusion

All claims are anticipated or unpatentable, and should be canceled.

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Petitioner certifies that this petition includes 5,588 words, as measured by Microsoft Word, exclusive of the table of contents, mandatory notices under § 42.8, certificates of service, word count, claim listing, and exhibits.

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CERTIFICATE OF SERVICE

The undersigned certifies pursuant to 37 C.F.R. §§ 42.6(e) and 42.105 that on July 30, 2025, a true and correct copy of the Petition for Inter Partes Review of U.S. Patent No. 9,263,509 was served by emailing a copy of same (by agreement) to the following attorneys for the Patent Owner:

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