

BOE Tech. Group. Co., Ltd.

V.

Optronic Sciences LLC

IPR2024-01133

Pat. 9,263,509

Patent Owner's Demonstrative Exhibits

Technology Background

;

Background: Patent 9,263,509

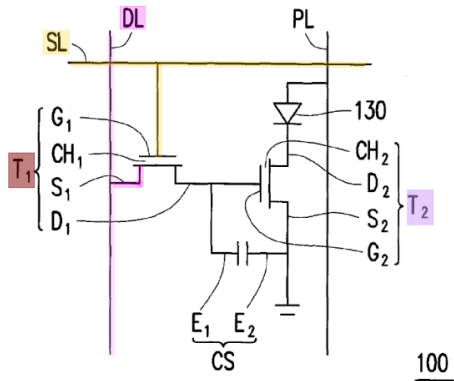


FIG. 1

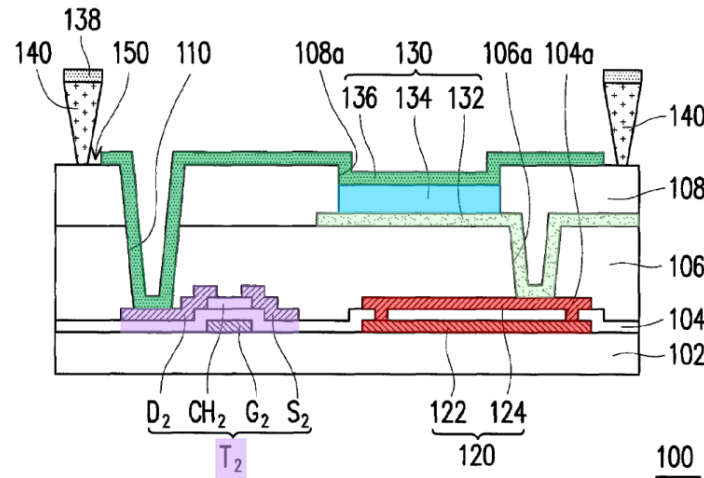


FIG. 2

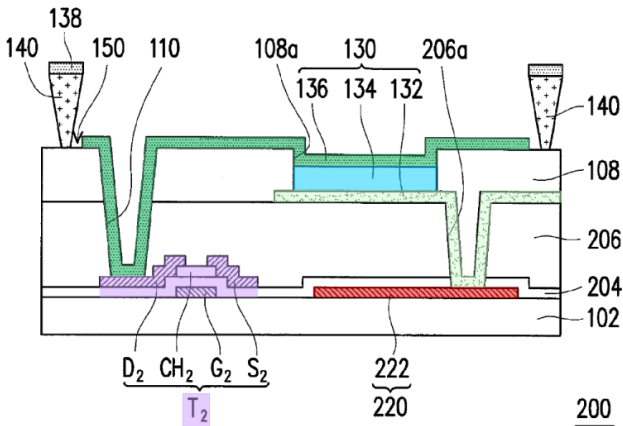


FIG. 3

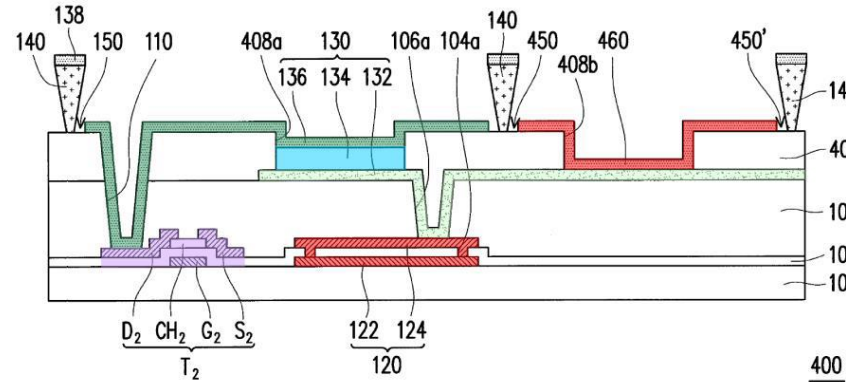
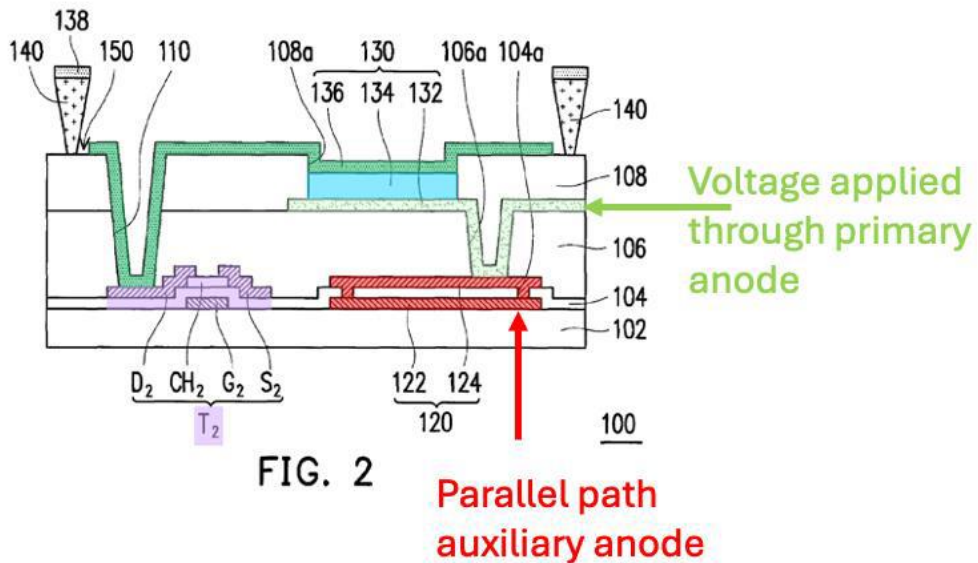


FIG. 5

“Therefore, the design of the invention that coordinates the **first electrode layer** of the light emitting device with the **auxiliary electrode** decreases the resistance of the first electrode layer through parallel connection, so as to significantly reduce the total resistance of the pixel structure, thereby improving the overall luminous uniformity of the display panel.”

Ex. 1001 at 2:17–23.

Background: Patent 9,263,509



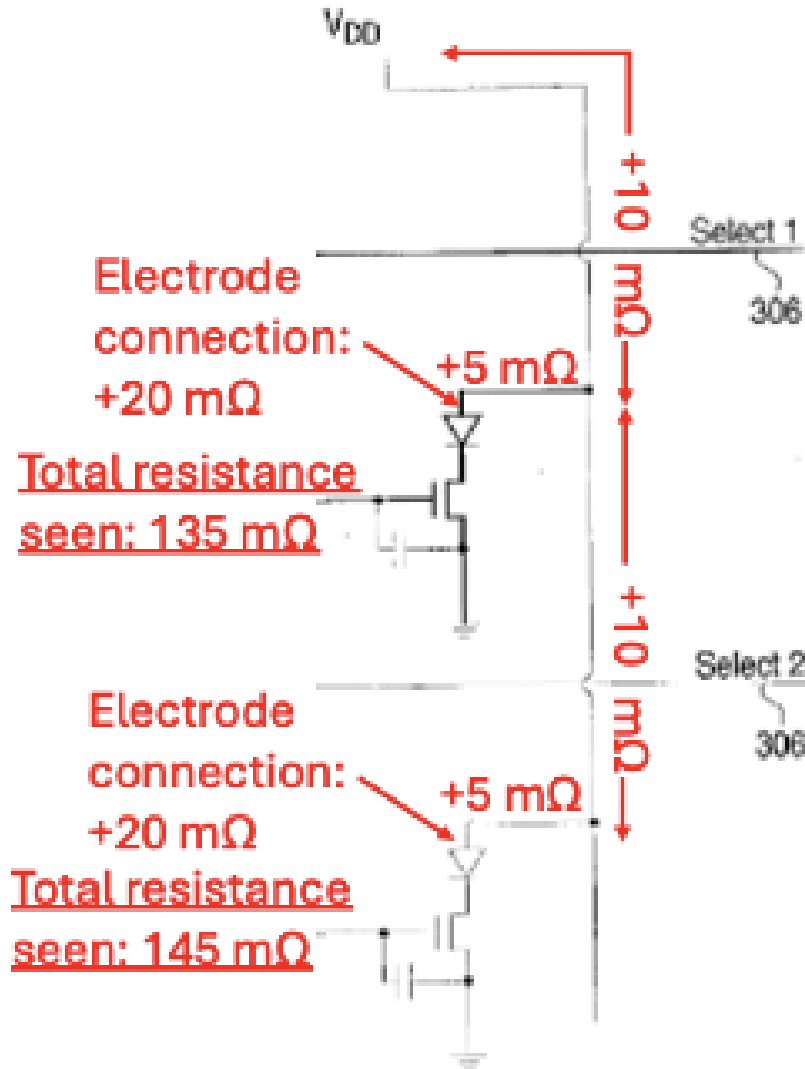
POPR at 16

“Therefore, the design of the invention that coordinates the **first electrode layer** of the light emitting device with the **auxiliary electrode** decreases the resistance of the first electrode layer through parallel connection, so as to significantly reduce the total resistance of the pixel structure, thereby improving the overall luminous uniformity of the display panel.”

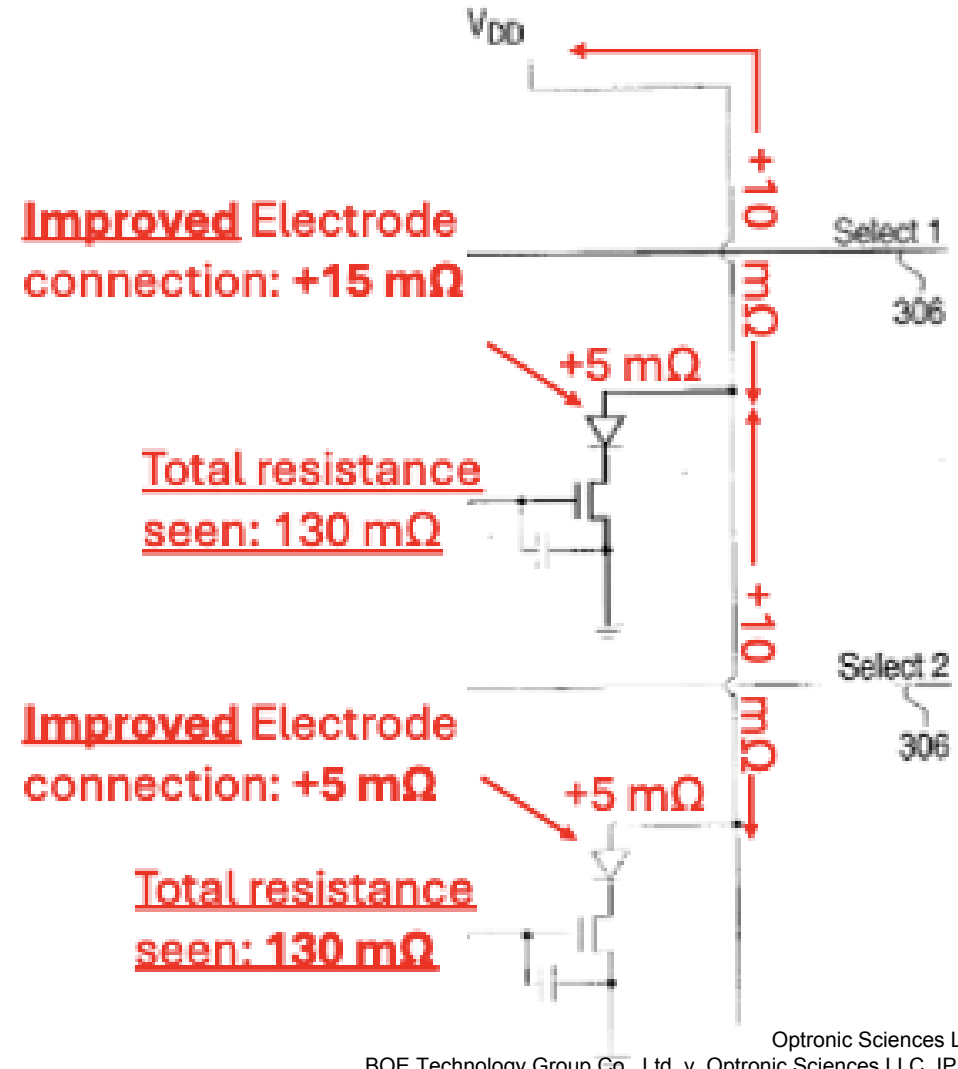
Ex. 1001 at 2:17–23.

Background: Patent 9,263,509

Wire to power source: +100 mΩ



Wire to power source: +100 mΩ



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Background: Patent 9,263,509

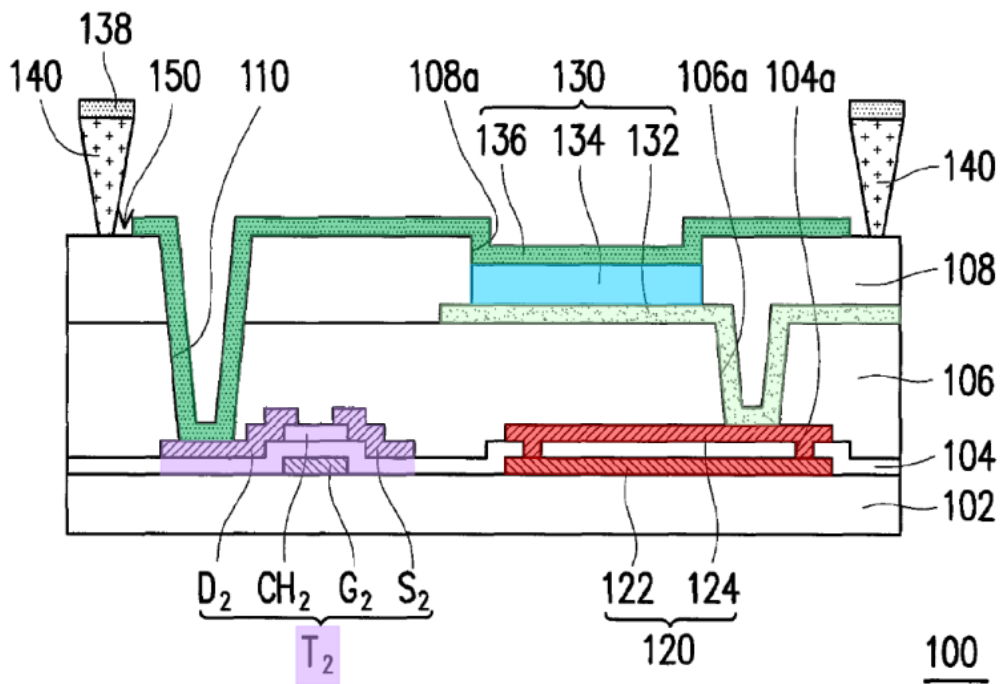


FIG. 2

1. A pixel structure, comprising:
 - a data line and a scan line;
 - at least one **active device** electrically connected with the data line and the scan line, and each active device comprising a gate, a channel layer, a source, and a drain;
 - a first **auxiliary electrode** electrically insulated from the **active device**; and
 - a light emitting device disposed above the first **auxiliary electrode**, wherein the light emitting device comprises:
 - a **first electrode layer** electrically connected with the first **auxiliary electrode**;
 - a **light emitting layer** disposed on the first electrode layer; and
 - a **second electrode layer** disposed on the light emitting layer, wherein the second electrode layer is electrically connected with the active device.
- Optronix Sciences LLC, Ex. 2031

the active device. Optronic Sciences LLC, Ex. 2031
BOE Technology Group Co., Ltd. v. Optronic Sciences LLC, IPR2024-01133
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District Court's Claim Construction

District Court’s Claim Construction

“disposed above” (’509 Patent, Claim 1) “disposed at a side of” (’509 Patent, Claim 10)	Indefinite
“auxiliary electrode” (’509 Patent, Claims 1, 5, 10)	“electrode that works in unison with another electrode”

Ex. 2030 (Markman Order) at 34–35

Sole Independent Claim:

1. A pixel structure, comprising:
a data line and a scan line;
at least one active device electrically connected with the data line and the scan line, and each active device comprising a gate, a channel layer, a source, and a drain;
a first auxiliary electrode electrically insulated from the active device; and
a light emitting device disposed above the first auxiliary electrode, wherein the light emitting device comprises:
a first electrode layer electrically connected with the first auxiliary electrode;
a light emitting layer disposed on the first electrode layer; and
a second electrode layer disposed on the light emitting layer, wherein the second electrode layer is electrically connected with the active device.

The Board Cannot Invalidate the '509 Patent

“Under § 103, the scope and content of the prior art are to be determined; **differences between the prior art and the claims at issue are to be ascertained**; and the level of ordinary skill in the pertinent art resolved.” *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966) (emphasis added).

“Because ... we find claim 23 to be indefinite ... we are unable to determine the patentability of this claim under 35 U.S.C. § 103.” *See, e.g., Headbox, LLC v. Infinite Imagineering, Inc.*, IPR2014-00365, Paper 11 at 3, 13 (PTAB May 22, 2015) (“Accordingly, we are unable to determine the scope of this claim or the differences between the claim and the prior art, and thus are unable to determine whether the claim would have been obvious over Kuo, Awaba, and Liow.”)

35 USC § 311(b) Scope of Inter Partes Review:

A petitioner in an inter partes review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications.

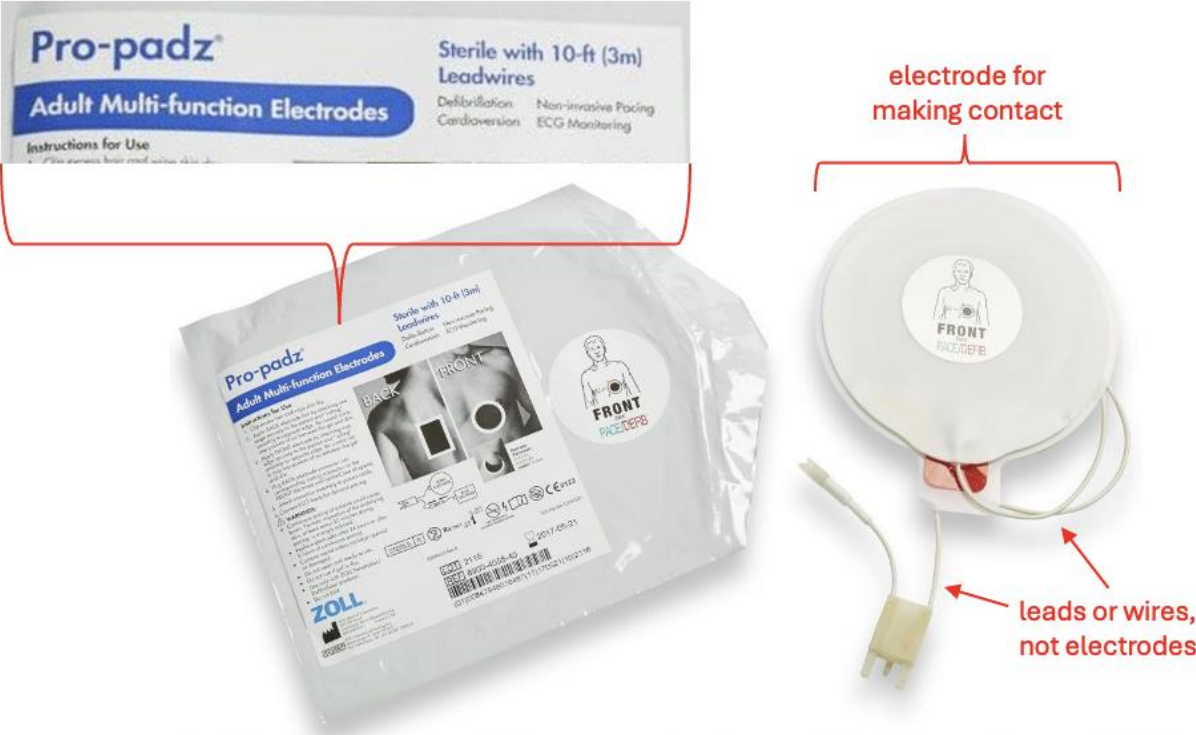
“Electrode”

“auxiliary electrode”
(’509 Patent, Claims 1, 5, 10)

“electrode that works in unison with another electrode”

Ex. 2030 at 35

An “end structure for making electrical contact”



<https://zollwebstore.com/defib-and-monitors/rseries/electrodes-padz/8900-4052-40>

Visited August 27, 2025, excerpted, annotated with red.

PO Sur-Reply at 11–12

Dr. Baker is Not a POSITA

Dr. Baker is Not a POSITA

A POSITA needs:

1. A relevant degree (undisputed)
2. At least two years of professional experience related to the design and manufacture of LED or OLED pixels for flat panel displays

Dr. Baker has:

1. A relevant degree (undisputed)
2. No experience working with LED or OLED pixels in flat panel displays

POR at 10–12

Dr. Baker is Not a POSITA

A POSITA needs:

1. A relevant degree (undisputed)
2. **At least two years of professional experience related to the design and manufacture of LED or OLED pixels for flat panel displays**

POR at 10–12

(12) **United States Patent** **Lee et al.**

(54) **PIXEL STRUCTURE HAVING LIGHT EMITTING DEVICE ABOVE AUXILIARY ELECTRODE**

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a pixel structure and particularly relates to a pixel structure capable of improving the overall luminous uniformity of a display panel.

2. Description of Related Art

An electroluminescent device is a self-emissive device, which has the following characteristics: no limit to the viewing angle, low production cost, high response speed (about hundred times faster than liquid crystal), power saving, suitable for DC driven portable machines, large working temperature range, light weight, suitable for being miniaturized/thinned depending on the hardware equipment, and so on. Therefore, electroluminescent devices have great potential and may very likely become the next-generation flat panel display.

Dr. Baker is Not a POSITA

A POSITA needs:

1. A relevant degree (undisputed)
2. **At least two years of professional experience related to the design and manufacture of LED or OLED pixels for flat panel displays**

POR at 10–12

1. A pixel structure, comprising:
 - a data line and a scan line;
 - at least one active device electrically connected with the data line and the scan line;
 - a light emitting device electrically connected with the active device, wherein the light emitting device comprises:
 - a first electrode layer;
 - a light emitting layer disposed on the first electrode layer; and
 - a second electrode layer disposed on the light emitting layer, wherein the second electrode layer is electrically connected with the active device; and
 - an auxiliary electrode electrically insulated from the active device and disposed at a side of the light emitting device, wherein the auxiliary electrode is electrically connected with the first electrode layer of the light emitting device.

Ex. 1001

Dr. Baker Lacks LED or OLED Experience

2013: Cirque, Inc. Consulting on the design of analog-to-digital interfaces for capacitive touch displays and pads.

Ex. 1003 at 113 (Baker CV)



A screenshot of the Cirque website. The header features the "CIRQUE" logo with a red arrow pointing to the 'O' and the tagline "INNOVATIVE TOUCH SOLUTIONS". Below the header is a navigation bar with links: Home, Solutions, Technologies, Touchpad Mouse, Developer Support, Company, and Contact Us. The main content area is split into two sections. The left section has a dark background with the text "Secure", "Durable", and "Advanced" stacked vertically, followed by the "GLIDETOUGH®" logo (a red stylized arrow) and the text "GlideTouch Point of Sale Panels From Cirque." The right section shows a photograph of a handheld device with a touch screen and a keypad. Below the screenshot, there are two red arrow icons pointing to the right, followed by the text "The Ultimate Point of Sale Touch Panel" and "Solutions for PIN Entry Keypads".

Ex. 2010

Dr. Baker Lacks LED or OLED Experience

2013: Cirque, Inc. Consulting on the design of analog-to-digital interfaces for capacitive touch displays and pads.

Ex. 1003 at 113 (Baker CV)

60. I considered (4) sophistication of the technology: LED and OLED pixel design is a sophisticated technology, and requires a deep technical understanding in areas unique to LEDs, OLEDs, and displays, including color gamut, heat management, materials designs, and pixel structural considerations.

66. Dr. Baker went on to describe work in photo detectors, which do not involve the same design or materials considerations that would arise in developing a pixel using and LED or an OLED. *See* Ex. 2028, 45:23-48:1. Indeed,

65. In my opinion, Dr. Baker has not had the necessary experience working with LEDs and OLEDs for displays. For example, he stated that he worked on LEDs or OLEDs in displays during his consulting work for Cirque, Inc. Ex. 2028, 37:19-38:3. It is my opinion that his experience at Cirque did not equip Dr. Baker with the knowledge a POSITA would have for the '509 Patent because his work was about capacitive touch, not the design of LEDs or OLEDs in pixels. *See* Ex. 1003 at 113

Ex. 2026 (Bretschneider Decl.) at ¶¶ 60, 65–66

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Dr. Baker's Hindsight and Contradictory Testimony

Dismissal for Contradictory Expert Testimony

The Board abused its discretion by improperly crediting expert testimony that has multiple material contradictions and that the Board found lacked credibility at least in certain respects. *See* Decision 32 (“[W]e agree

In consideration of the foregoing, it is:

ORDERED that Director Review is granted;

FURTHER ORDERED that the Board’s Final Written Decision is reversed; and

FURTHER ORDERED that the proceeding is terminated.

Interactive Communications International, Inc. v. Blackhawk Network Inc.,
IPR2024-00465, Paper 39 (PTAB Oct. 1, 2025)

Motivation would Not Have Resulted in the Proposed Solution

Lee053. A POSITA would have been motivated to implement the solution of Lee053 in the Weaver device to lower the resistance between anode 406 and the voltage source VDD, and/or allow for reduced wiring widths that enables scaling down the size of the circuit. *Id.*, ¶128.

Petition at 33

voltage drop as disclosed in Song. *Id.* A POSITA would have been motivated to implement the solution of Song in the Weaver device to lower the resistance and voltage drop between anode 406 and the voltage source VDD of Weaver. *Id.*

Petition at 47

Motivation would Not Have Resulted in the Proposed Solution

IZO, or ITZO. *Id.*, [0025], [0038]. A POSITA would have been motivated to implement the solution of Lee149 in the Weaver device to lower the resistance and voltage drop between anode 406 and the VDD line of Weaver. This is consistent

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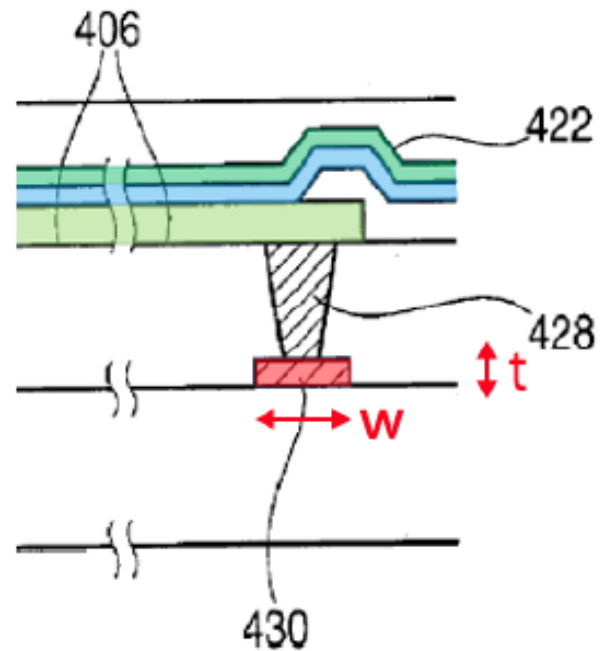
139 reduces the resistance of the first electrode 132.” EX1012, [0037], [0059]. A POSITA would have been motivated to implement the solution of Bae in the Weaver device to lower the resistance and voltage drop between anode 406 and the VDD line of Weaver. This is consistent with the teachings of Weaver, which

Petition at 67

Motivation would Not Have Resulted in the Proposed Solution

Hindsight-Free Modification:

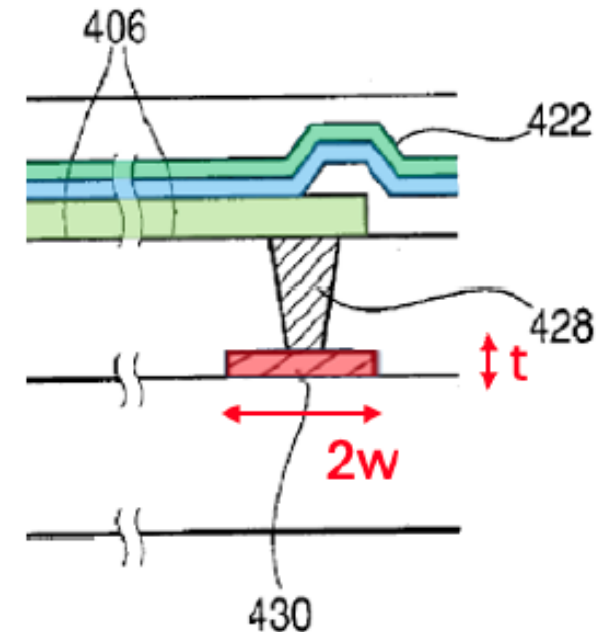
A POSITA would have made Weaver's bus line thicker or wider if the goal was to reduce resistance



Unmodified:

$$A = w \times t$$

$$R = \rho L / A$$



Modified:

$$A = w \times t$$

$$R = \rho L / (2A)$$

$$R = \rho \frac{L}{A}$$

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Contradictions Rooted in Hindsight

electrode layer) that are electrically connected together. EX1003, ¶128. Doing so reduces resistance, and can allow for reduced wiring widths as disclosed in Lee053. A POSITA would have been motivated to implement the solution of Lee053 in the Weaver device to lower the resistance between anode 406 and the voltage source VDD, and/or allow for reduced wiring widths that enables scaling down the size of the circuit. *Id.*, ¶128.

Petition at 32

Contradictions Rooted in Hindsight

Q Would it be possible for the POSITA to increase the thickness or the cross-sectional area of the bus line 430?

A You can't. The POSITA wouldn't be able to modify the process because patents aren't about process development and the fabrication steps so you couldn't adjust thickness of a metal. These are about the layout where you select where things are located and the size of the things from the top or layout view.

So a POSITA wouldn't have the -- wouldn't be able to mess with the process when designing the pixel. That would already be in place.

Ex. 2028, 120:6–18

Q Are there any other connections that need to be -- that are obviously needed to make this work?

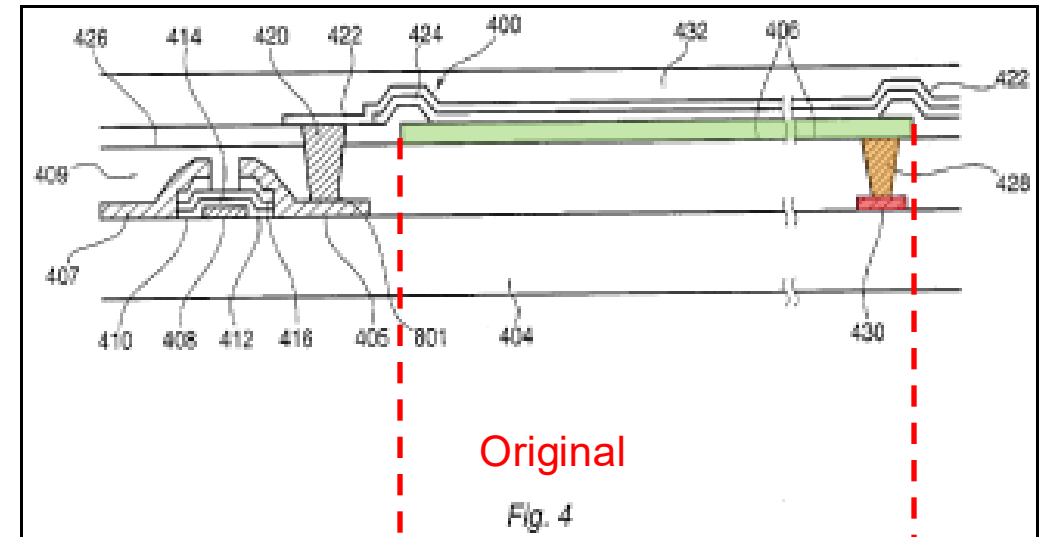
A You would need another via, like 428, going down to -- going down; and then you could simply increase the width of bus line 430, and then you'd be done.

Ex. 2028, 196:3–8

Contradictions Rooted in Hindsight

pixels (which often number in the millions). Therefore, the various lines supplying power to a pixel can only be made so wide. A POSITA would have understood that 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 reducing the resistance of the wires powering and supplying signals to the pixel, i.e., decreased pixel resistance, beyond what can be provided by existing possible line widths. Making millions of lines “a little wider” would result in an unwanted reduction in pixel density and resolution (larger area pixels). A POSITA would have understood that 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. Therefore, I disagree that hindsight was used.

Ex. 1020 (Baker Decl. ISO Reply), ¶ 35



Ex. 1004, Fig. 4 (annotated)

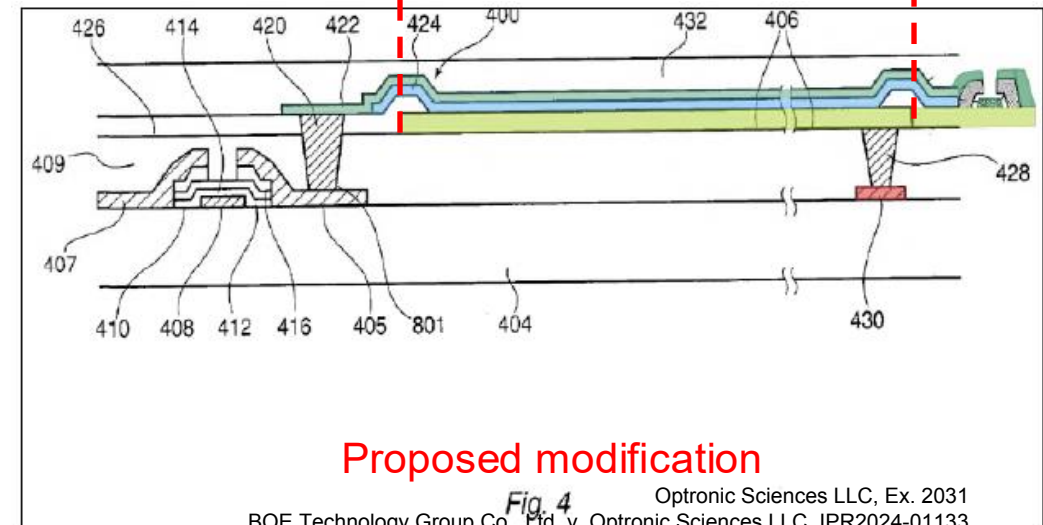


Fig. 4
Opionic Sciences LLC, Ex. 2031
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Petitioner's Reply at 19, 22

Contradiction: Doubling Down that A POSITA Would Not Change the Process

A That would be the only option they have because they can't control the thickness because the process is set. This patent is about the, you know, layout, structure of the design of the pixel, like how to route the metal layers and position the -- the organic-light-emitting diode in a certain way. It's not about changing the process technology.

Ex. 2028, 123:24–124:3

display. A POSITA is not a person that is changing the process or changing the thickness of an organic layer of a light-emitting diode. They're designing an optoelectronic system of pixel structure.

Ex. 2028, 139:22–140:2

So could you please tell the board: Would a POSITA who had Weaver's technology at the time of the invention, would this POSITA have or not have the freedom to modify the process?

A I did answer your question. It's just the question doesn't make a lot of sense because it has an underlying -- underlying assumption that the POSITA would be able to modify the process and --

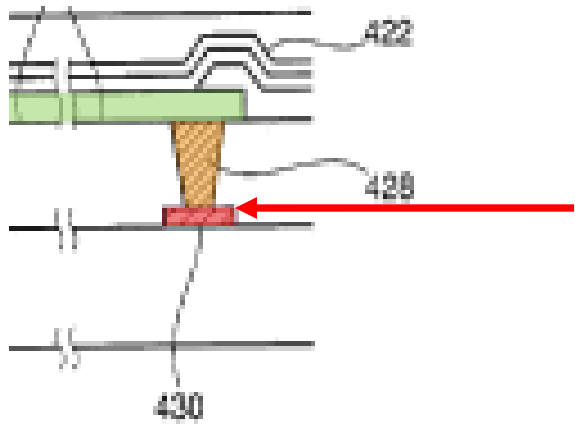
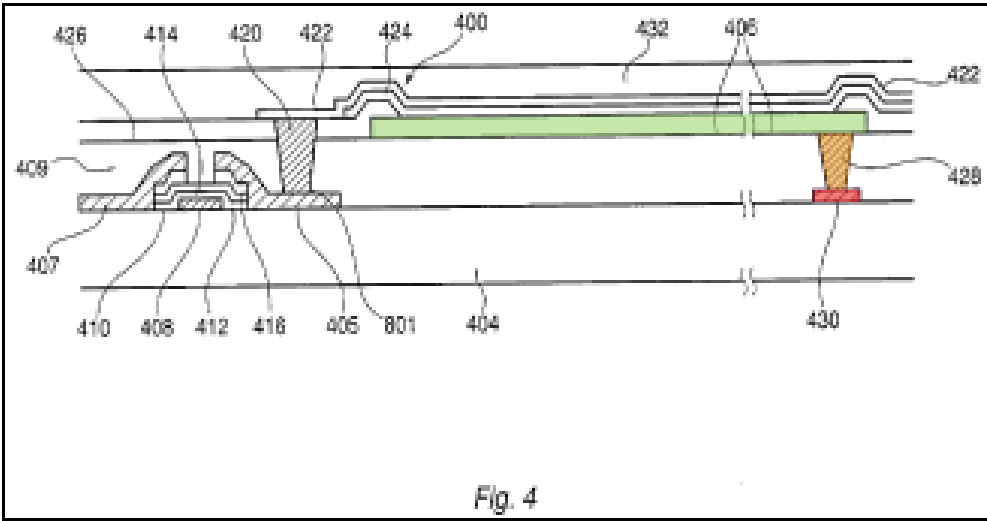
Ex. 2028, 137:15–22
Optonic Sciences LLC, Ex. 2031
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Contradictions Rooted in Hindsight

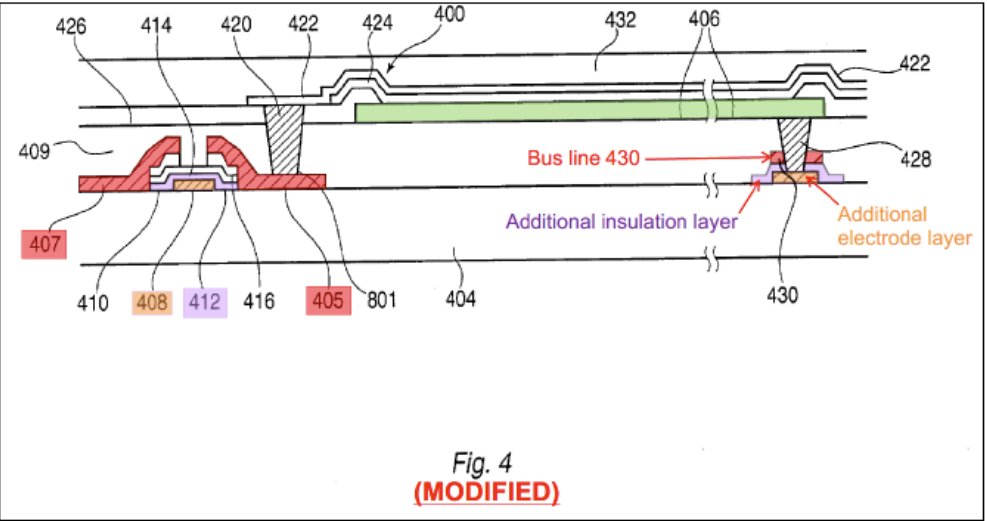
electrode layer) that are electrically connected together. EX1003, ¶128. Doing so reduces resistance, and can allow for reduced wiring widths as disclosed in Lee053. A POSITA would have been motivated to implement the solution of Lee053 in the Weaver device to lower the resistance between anode 406 and the voltage source VDD, and/or allow for reduced wiring widths that enables scaling down the size of the circuit. *Id.*, ¶128.

Petition at 32

Contradiction: Proposes Modifications Require Changing to the Process

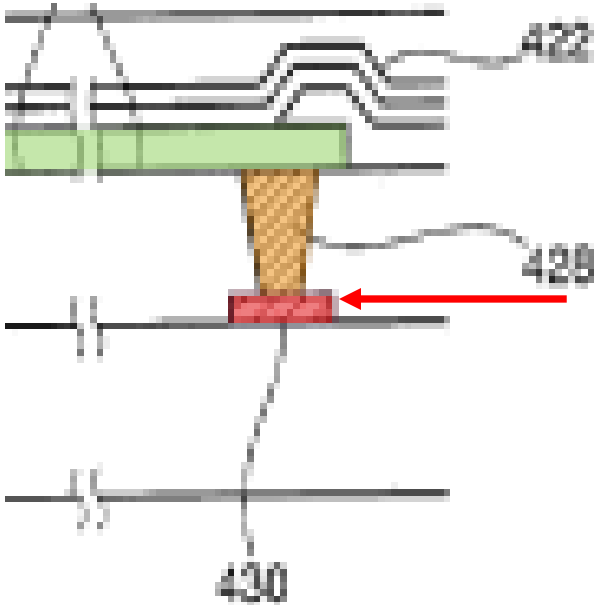
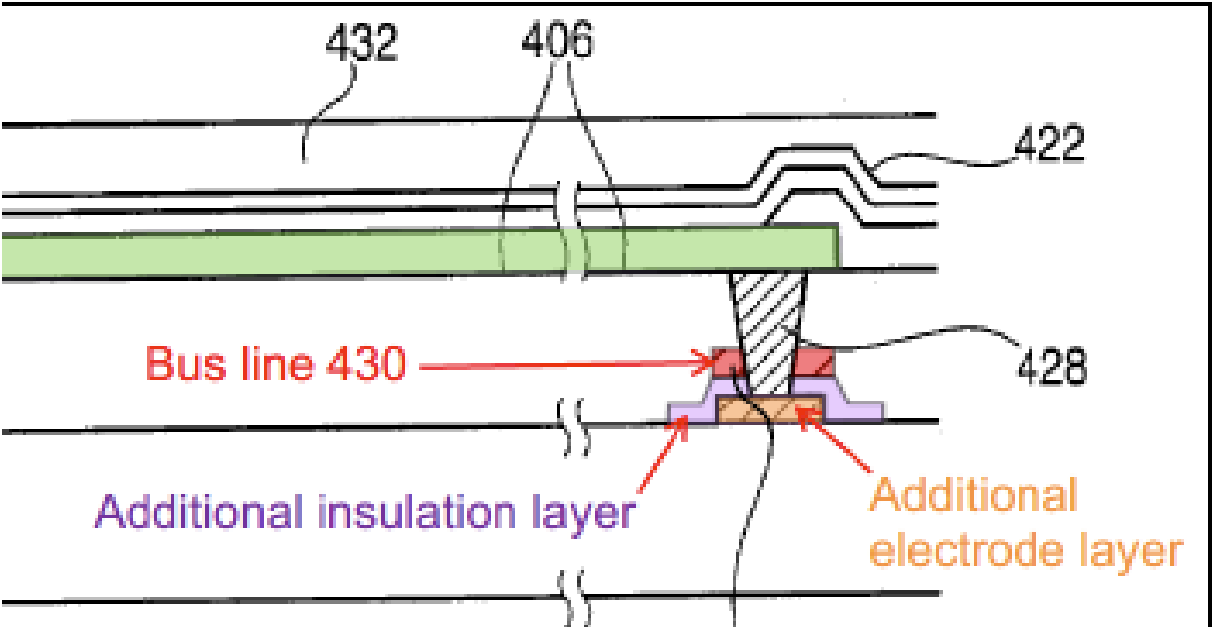


Bus line 430 stops the etch process from eating away the layers below (*i.e.*, the process's etch will not go through the material of the bus line)



114. As is plainly seen in the unmodified Fig 4 above, Weaver teaches that via 428 extends to bus line 430. A POSITA understood that via 428 would have been made with etching and that bus line 430 is an etch stop—this means the etch process stops at the material of bus line 430 and cannot etch into bus line 430. If a POSITA wanted to extend via 428 through bus line 430, as the modified figure above shows, the POSITA would have had to change the process to create the via 428 through bus line 430, shown in the modified figure above. However, Dr. Baker was emphatic that a POSITA would not change the process. Ex. 2028, 139:22–140:2

Contradiction: Proposes Modifications Require Changing to the Process



Bus line 430 stops the etch process from eating away the layers below (*i.e.*, the process's etch will not go through the material of the bus line)

Hindsight on the Record

Q So to the extent that any other modifications you think are necessary and obvious, let me know now; otherwise, I will PDF this and get it committed as an exhibit.

A Well, just one sec.

I mean, Claim 11 teaches using the material 422. So you don't have an additional layer. So it'd probably be better to cover both Claims 10 and 11 with the modification, and you can easily do that by getting rid of the red box and just -- or moving the red box to where it's on the same layer as 422 and then just extending it down to the -- yeah, kind of.

Ex. 2028, 197:2–14

A I made a mistake because they're shorting out the LEDs, so I'm doing something wrong here. Hold on, let me look at the claim language. This is the problem with doing stuff in the deposition. I think I did the same thing in the other one where I shorted out both sides of the LED. So that's wrong. Exhibit 9 -- let me read them, read the claim again.

Ex. 2028, 206:16, 20–21

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Hindsight on the Record

Q As we sit here today, what is your best estimate of the combined time that you spent preparing the declarations of the '509 and '733 patents?

A 115 hours.

Ex. 2029, 295:12–16

Dr. Baker's Fundamental Misunderstanding of the Technology

5 Could you explain the case where the uniform
6 brightness depends on the resistance?

7 A The resistance to the pixel structure. So,
8 for example, if the resistance to the pixel
9 structure changes from the first row to the last row
10 of the power, so their voltage goes from -- for
11 example, from 4 to 4.9 to 4.8. So each pixel is
12 getting a slightly lower voltage supplied to it
13 because of the resisted drop on the line, then
14 writing in an image that's one color would result in
15 a shade, as you go from the top to the bottom,
16 showing that color is changing as one example.

17 Q And would -- would uniformity improve if you
18 were to lower the resistance to all of those pixels?

19 MR. LIMBACH: Objection. Form.

20 THE WITNESS: That's what's taught in the
21 patent. I think it's fair to say if you supply a

Ex. 2028 (Baker Tr.) at 91

“Therefore, the design of the invention that coordinates the first electrode layer of the light emitting device with the auxiliary electrode decreases the resistance of the first electrode layer through parallel connection, so as to significantly reduce the total resistance of the pixel structure, thereby improving the overall luminous uniformity of the display panel.”

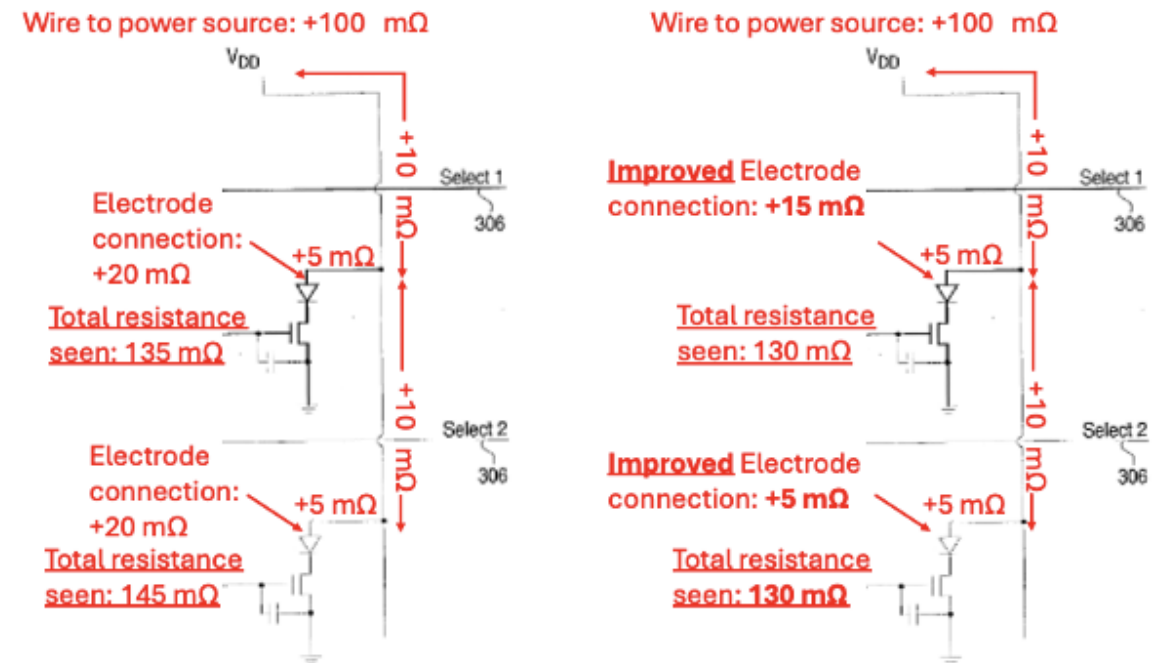
Ex. 1001 at 2:17–23.

Dr. Baker's Fundamental Misunderstanding of the Technology

Dr. Baker . . . proposed this combination based on an initial misunderstanding of how the technology works—not based on the knowledge of a POSITA.

POR at 47

[W]hen asked “would uniformity improve if you were to lower the resistance to all of those pixels,” Dr. Baker gave the wrong answer and revealed his misunderstanding. [Ex. 2028] at 91:20–92:8 (“That’s what’s taught in the patent. . . . I don’t know; that’s not an opinion I’ve formed.”). He lacked a fundamental understanding of how the technology worked to achieve improved uniformity.



Based on excerpt of Ex. 1004 at Fig. 3; annotated in Red; values made up for convenience

PO's Motion to Exclude at 9–11

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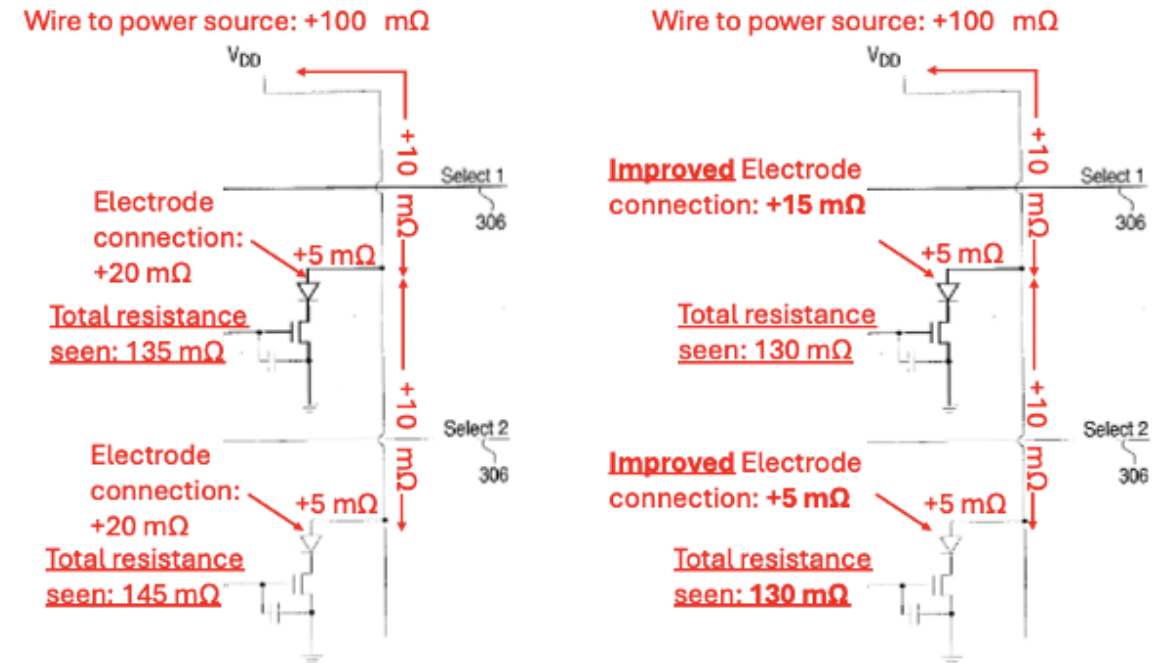
Dr. Baker's Fundamental Misunderstanding of the Technology

Dr. Baker . . . proposed this combination based on an initial misunderstanding of how the technology works—not based on the knowledge of a POSITA.

POR at 47

Q So what resistance would you reduce in the lightbulb example to achieve uniform brightness?

A You could reduce the resistance of the wire, for the long run, the 200-foot run, and try to match it to the resistance of the wire for the 2-foot run.



Based on excerpt of Ex. 1004 at Fig. 3; annotated in Red; values made up for convenience

Ex. 2028 at 94:24–95:3

PO's Motion to Exclude at 9

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Ground 1: Weaver § 102, Claims 1-5, 9, 12-13

Weaver's Design

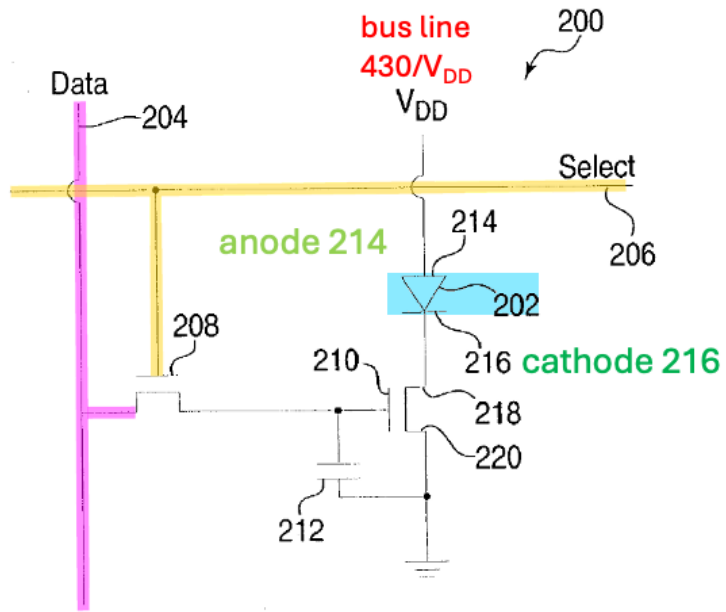


Fig. 2

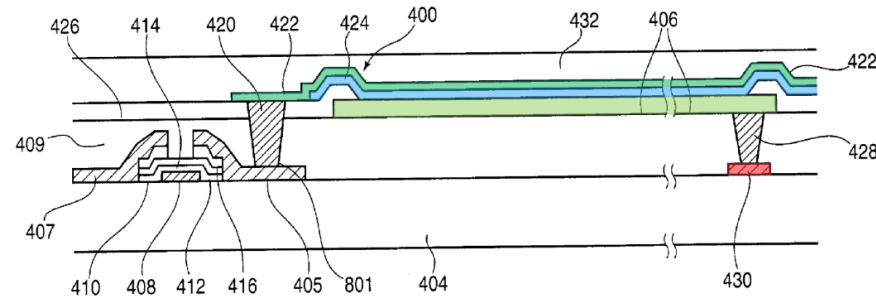


Fig. 4

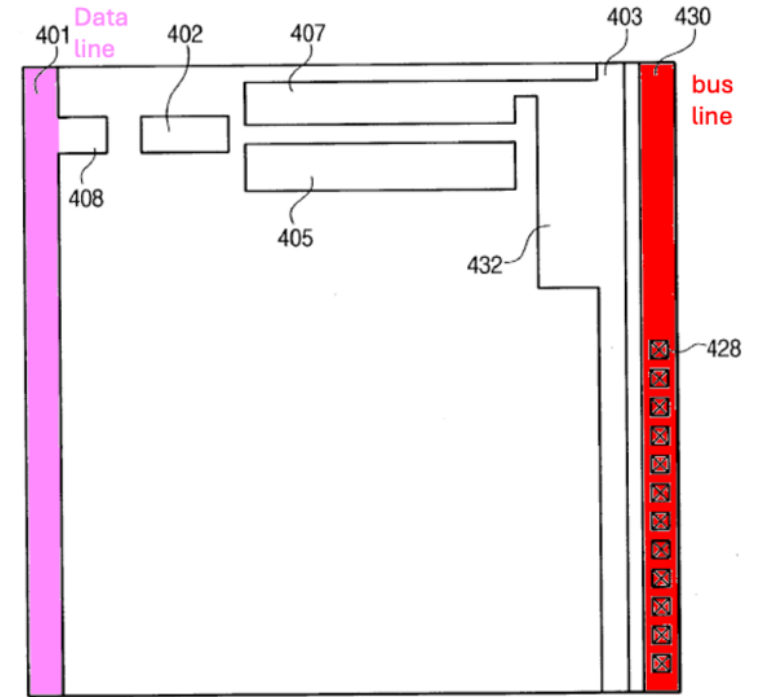


Fig. 6

POPR at 14–15 (citing Ex. 1004 at Figs. 2, 4, 6)

Weaver lacks an “auxiliary electrode”

Ex. 2030 at 35

“auxiliary electrode”
(’509 Patent, Claims 1, 5, 10)

“electrode that works in unison with another
electrode”

Weaver’s bus line 430 does not meet this construction. It is not an electrode that works in unison with another electrode. Because the Petition offered no invalidity theory under the District Court’s preliminary construction, it can be outright denied. If the Board uses a construction that is different than the District Court’s preliminary construction, “the Board shall explain in the . . . final written decision why a different outcome is warranted.”²

PO Sur-Reply at 13

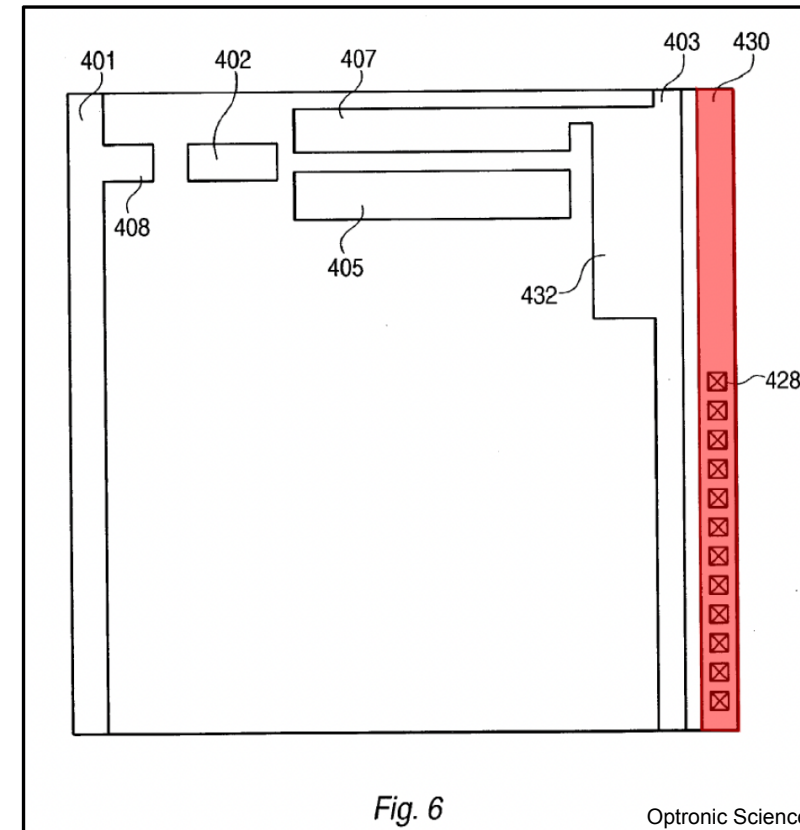


Fig. 6

Optronic Sciences LLC, Ex. 2031

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Petition at 19 (annotating Weaver)

Weaver lacks an “auxiliary electrode”

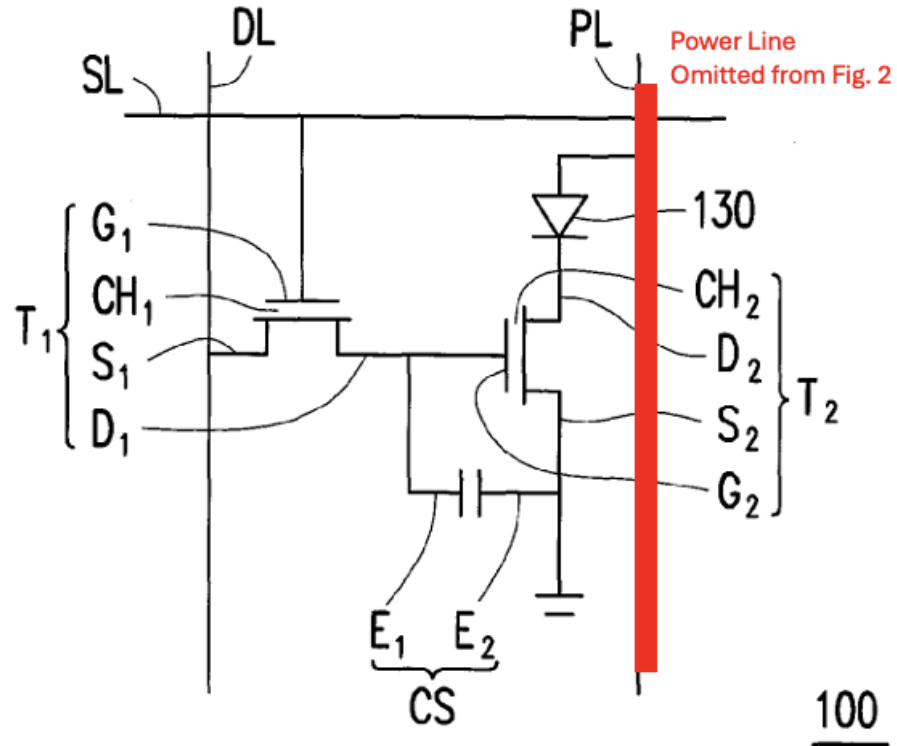


FIG. 1

FIG. 2 is a schematic cross-sectional view of a pixel structure according to the first embodiment of the invention. In order to clearly illustrate this embodiment of the invention, FIG. 2 depicts only a part of the components, such as the active device T_2 and the light emitting device 130 of the pixel structure 100. That is to say, for illustrative purpose, the data line DL, the scan line SL, the active device T_1 , the capacitor CS, the power line PL, and so on are omitted from FIG. 2. Since structures of these omitted components are commonly known to those having ordinary knowledge in the art, details thereof will not be repeated hereinafter.

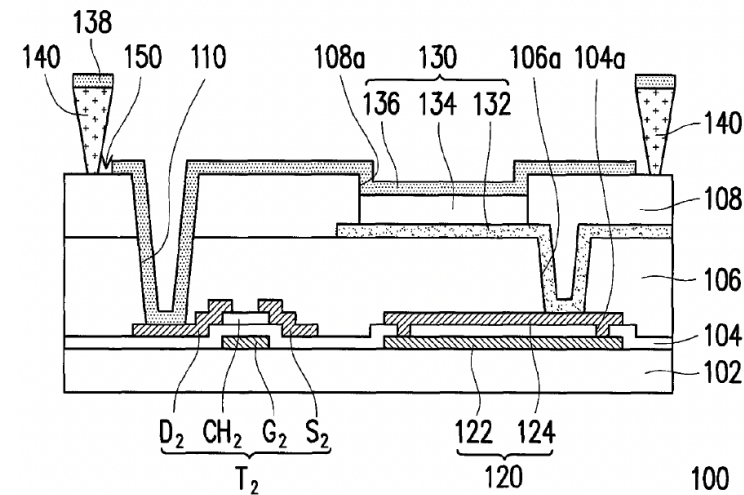


FIG. 2

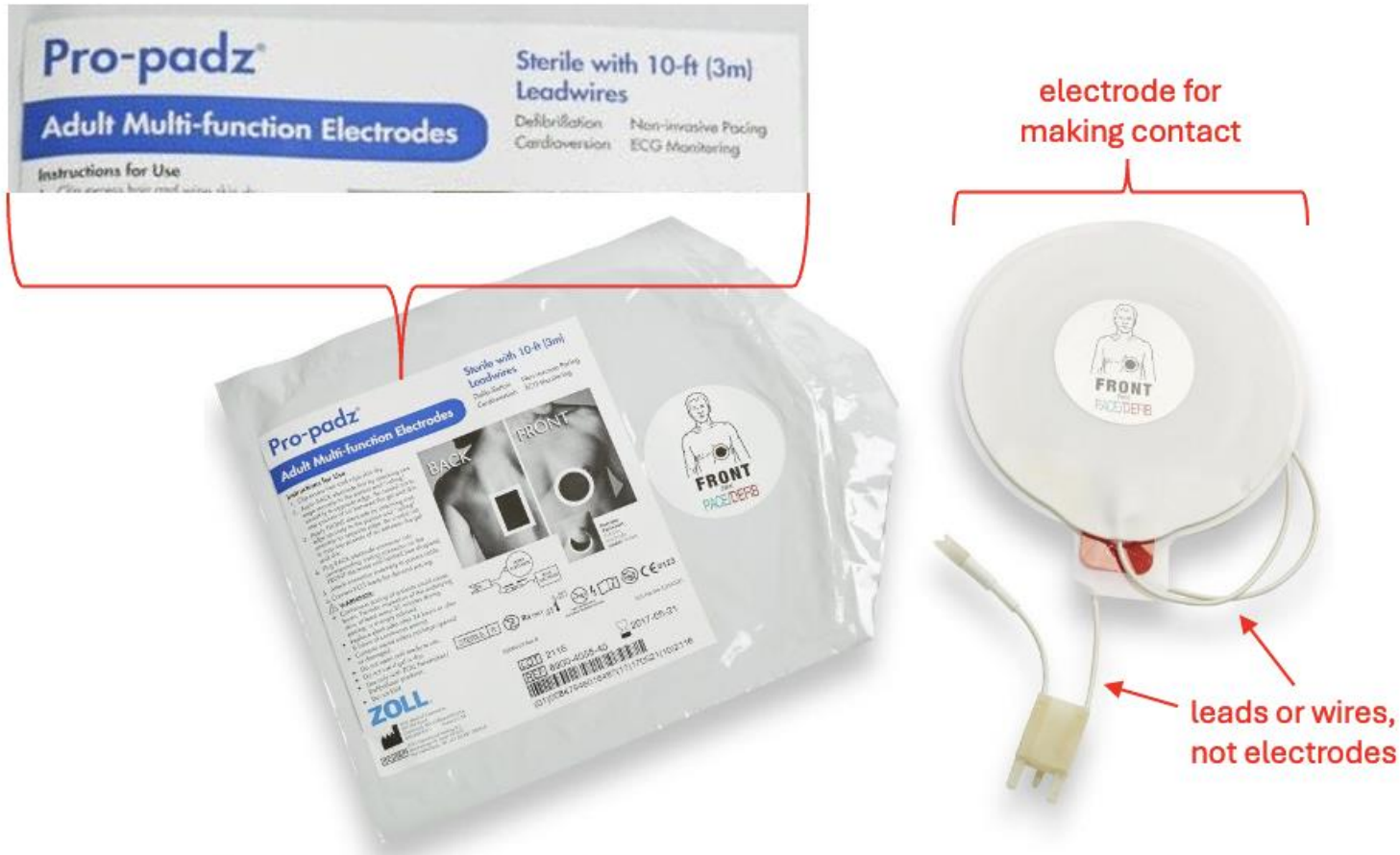
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“Electrode”

Ex. 2030 at 35

“auxiliary electrode”
(’509 Patent, Claims 1, 5, 10)

“electrode that works in unison with another electrode”



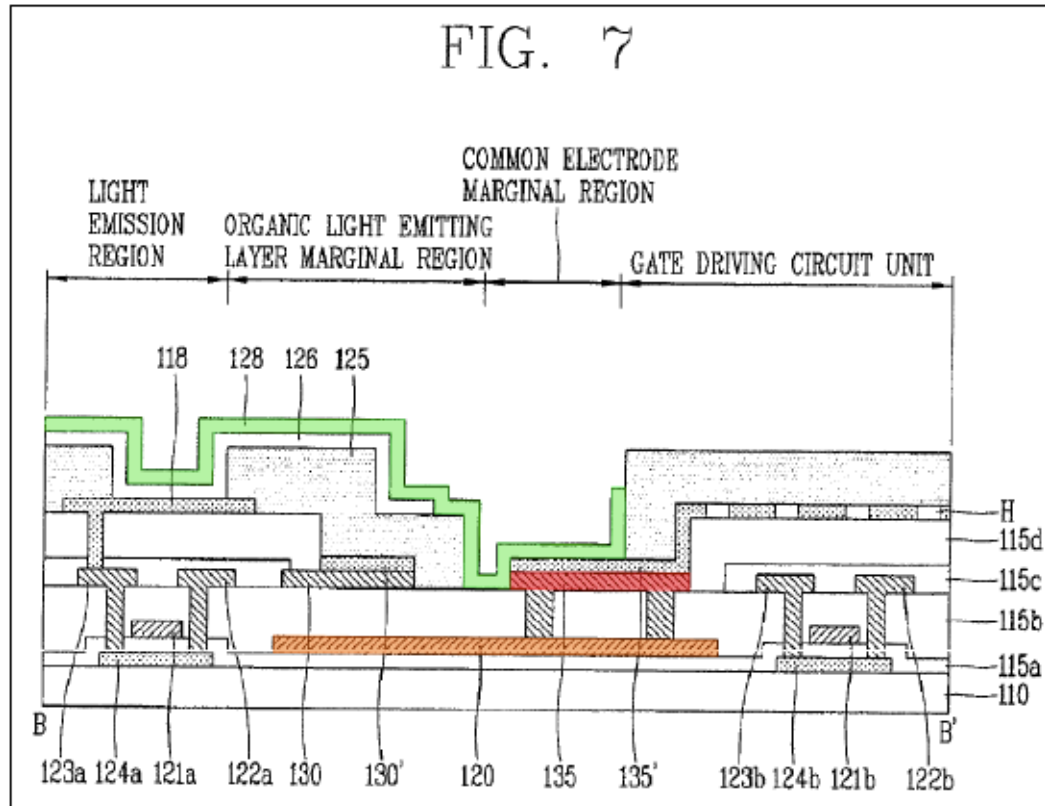
<https://zollwebstore.com/defib-and-monitors/rseries/electrodes-padz/8900-4052-40>

Visited August 27, 2025, excerpted, annotated with red.

PO Sur-Reply at 11–12

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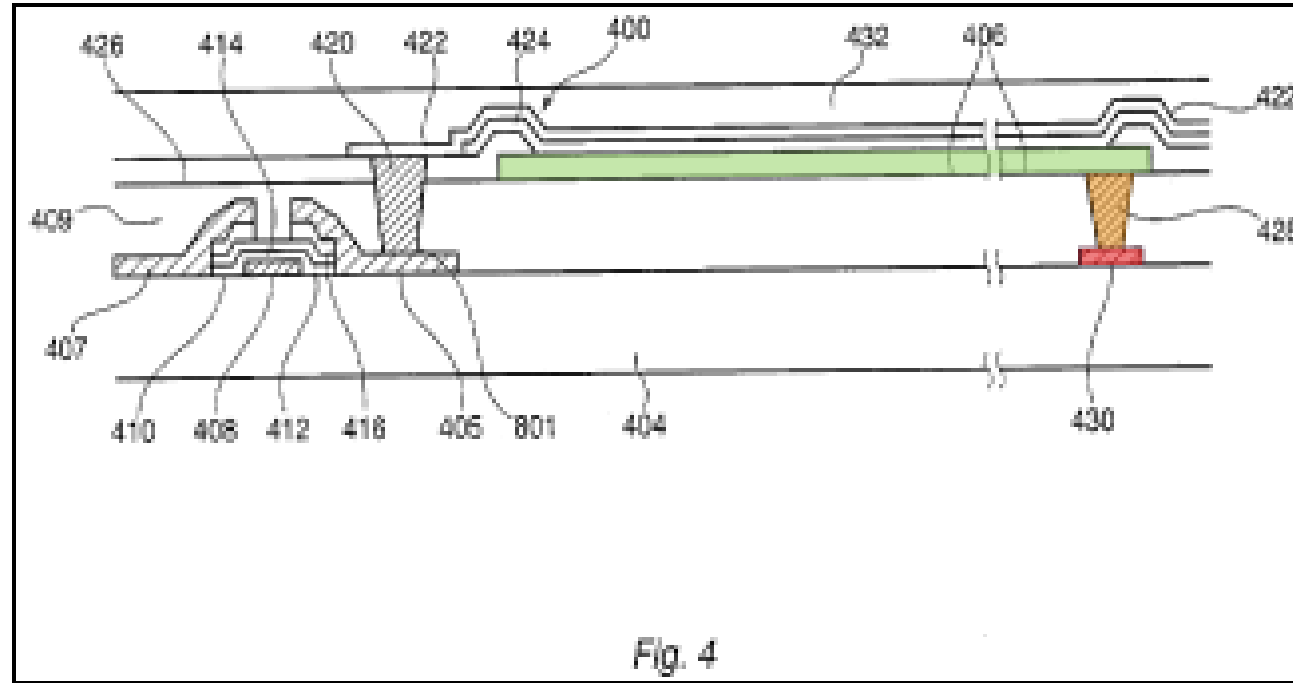
Ground 2: Weaver & Lee053 § 103, Claims 6–8



Lee053 uses **dummy wiring** “formed at a lower side thereof and connected to the **second power wiring 135**, obtaining an effect that the thickness of the second power wiring 135 is substantially increased.”

Ex. 1005, [0085].

No Corresponding “Dummy Wiring” in Weaver



Ex. 1004, Fig. 4 (annotated)

Contradiction: A POSITA Would Not Change the Process

A You can't. The POSITA wouldn't be able to modify the process because patents aren't about process development and the fabrication steps so you couldn't adjust thickness of a metal. These are about the layout where you select where things are located and the size of the things from the top or layout view.

So a POSITA wouldn't have the -- wouldn't be able to mess with the process when designing the pixel. That would already be in place.

Ex. 2028, 120:6–18

A That would be the only option they have because they can't control the thickness because the process is set. This patent is about the, you know, layout, structure of the design of the pixel, like how to route the metal layers and position the -- the organic-light-emitting diode in a certain way. It's not about changing the process technology.

Ex. 2028, 123:24–124:3

display. A POSITA is not a person that is changing the process or changing the thickness of an organic layer of a light-emitting diode. They're designing an optoelectronic system of pixel structure.

Ex. 2028, 139:22–140:2

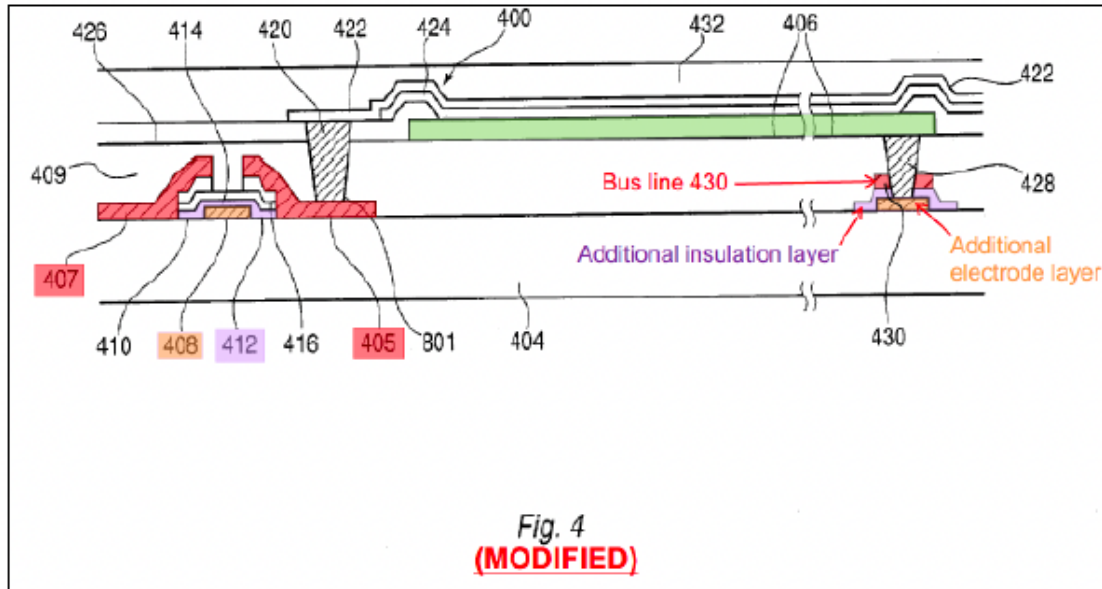
So could you please tell the board: Would a POSITA who had Weaver's technology at the time of the invention, would this POSITA have or not have the freedom to modify the process?

A I did answer your question. It's just the question doesn't make a lot of sense because it has an underlying -- underlying assumption that the POSITA would be able to modify the process and --

Ex. 2028, 137:15–22

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A POSITA Would Not Modify the Process



Ex. 2026 (Bretschneider Decl.) ¶ 132

114. As is plainly seen in the unmodified Fig 4 above, Weaver teaches that via 428 extends to **bus line 430**. A POSITA understood that via 428 would have been made with etching and that **bus line 430** is an etch stop—this means the etch process stops at the material of **bus line 430** and cannot etch into **bus line 430**. If a POSITA wanted to extend via 428 through **bus line 430**, as the modified figure above shows, the POSITA would have had to change the process to create the via 428 through **bus line 430**, shown in the modified figure above. However, Dr. Baker was emphatic that a POSITA would not change the process. Ex. 2028, 139:22–140:2

Ex. 2026 (Bretschneider Decl.) at ¶ 114

Dismissal for Contradictory Expert Testimony

The Board abused its discretion by improperly crediting expert testimony that has multiple material contradictions and that the Board found lacked credibility at least in certain respects. *See* Decision 32 (“[W]e agree

In consideration of the foregoing, it is:

ORDERED that Director Review is granted;

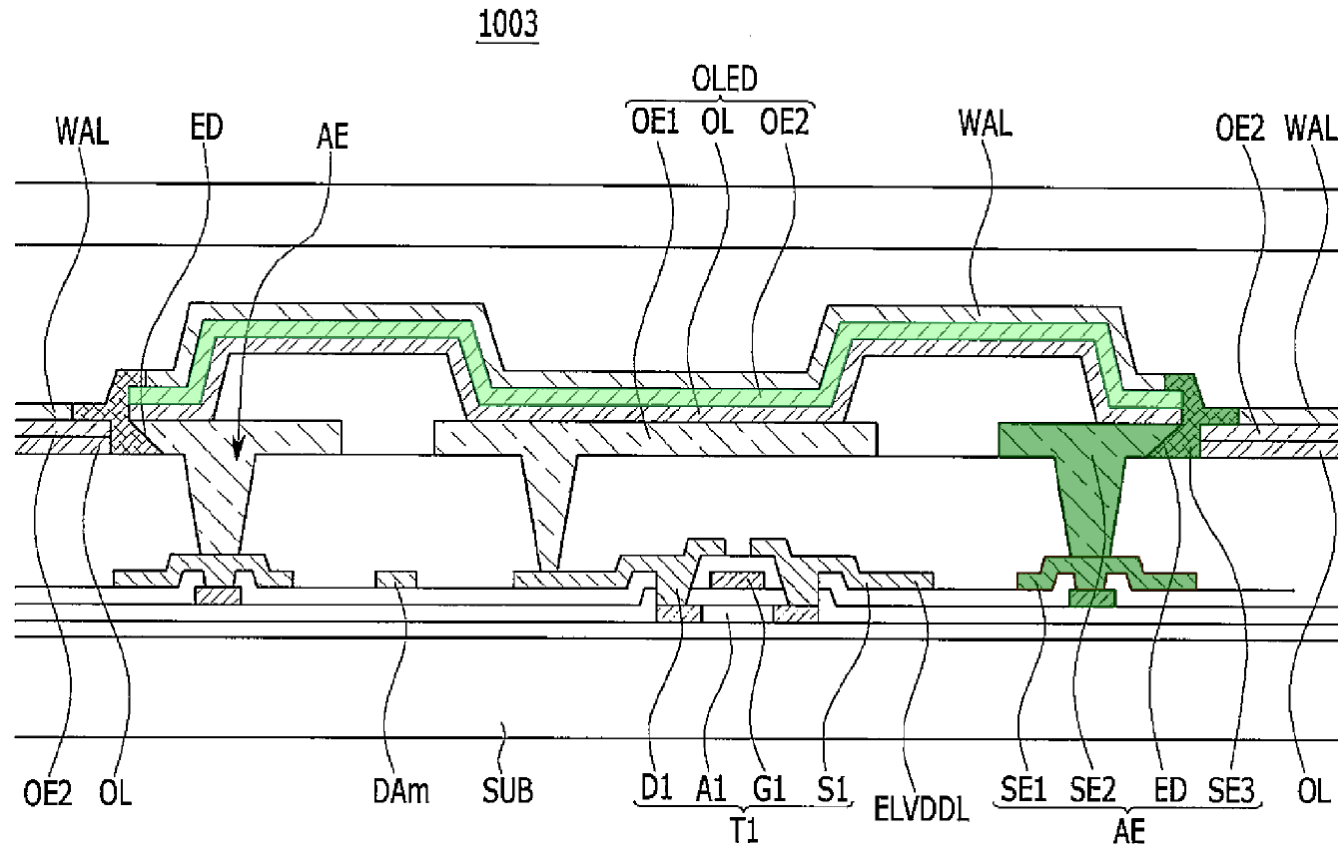
FURTHER ORDERED that the Board’s Final Written Decision is reversed; and

FURTHER ORDERED that the proceeding is terminated.

Interactive Communications International, Inc. v. Blackhawk Network Inc.,
IPR2024-00465, Paper 39 (PTAB Oct. 1, 2025)

Ground 3: Weaver & Song § 103, Claims 6-8

FIG. 5

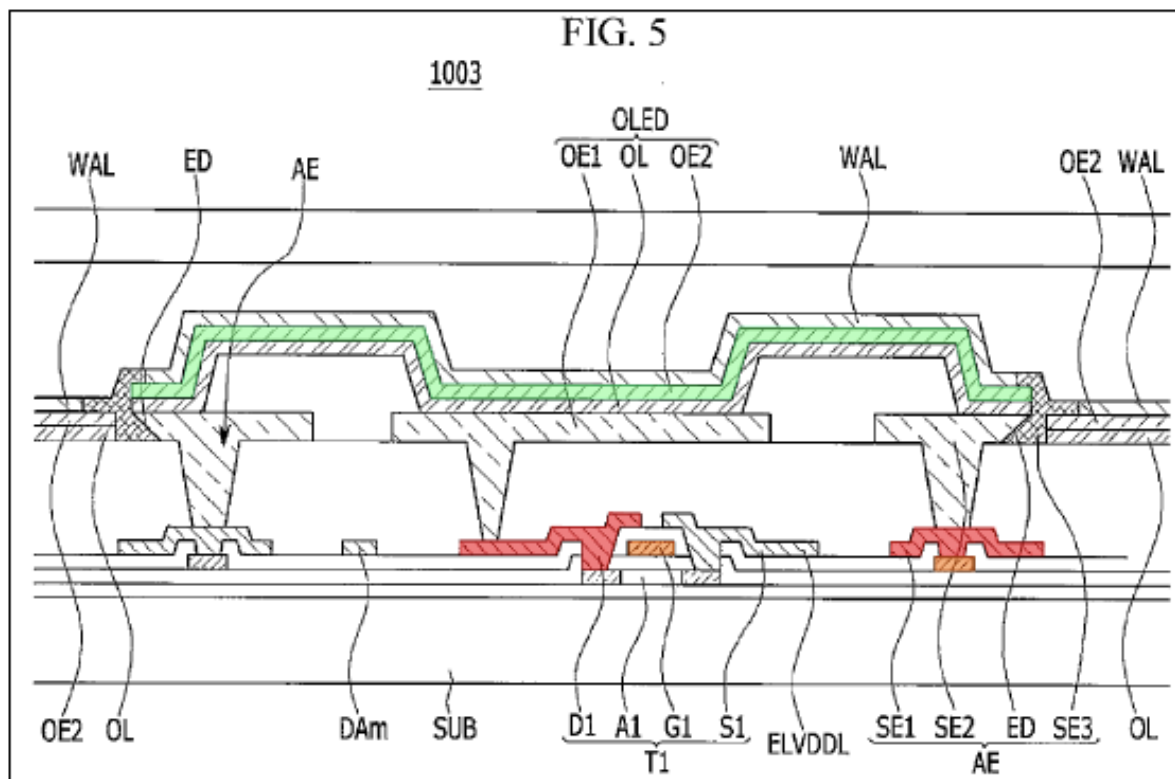


Song describes an “**auxiliary electrode AE**” that “may be formed using a so called metal self-patterning technology.” *Id.* [0077]. **Auxiliary electrode AE** has several portions, SE1, SE2, and SE3. See *id.*, [0090]. SE3 is “formed (or deposited) with a slope at the end” of the second electrode portion SE2. *Id.*, [0094].

POR at 5 (citing Ex. 1006)

Petition at 44 (annotating Ex. 1006, Fig. 4)

Hindsight-Based Selection



POR at 37 (citing Ex. 1003, ¶ 151)

136. This is another example of hindsight. Dr. Baker selectively takes portions of Song's auxiliary electrode AE and disregards the overall structure—for example, he points to SE1 and ignores SE2 and SE3. The auxiliary electrode AE is a multilayered, complex structure, unlike Lee053's single layer of "dummy wiring". In my opinion, this is a hindsight-based attempt to map Song to the language of the claims and is not what a POSITA would have done based on Weaver and Song alone.

Ex. 2026 (Bretschneider Decl.) at 5

The Same Modification to the Process is Required

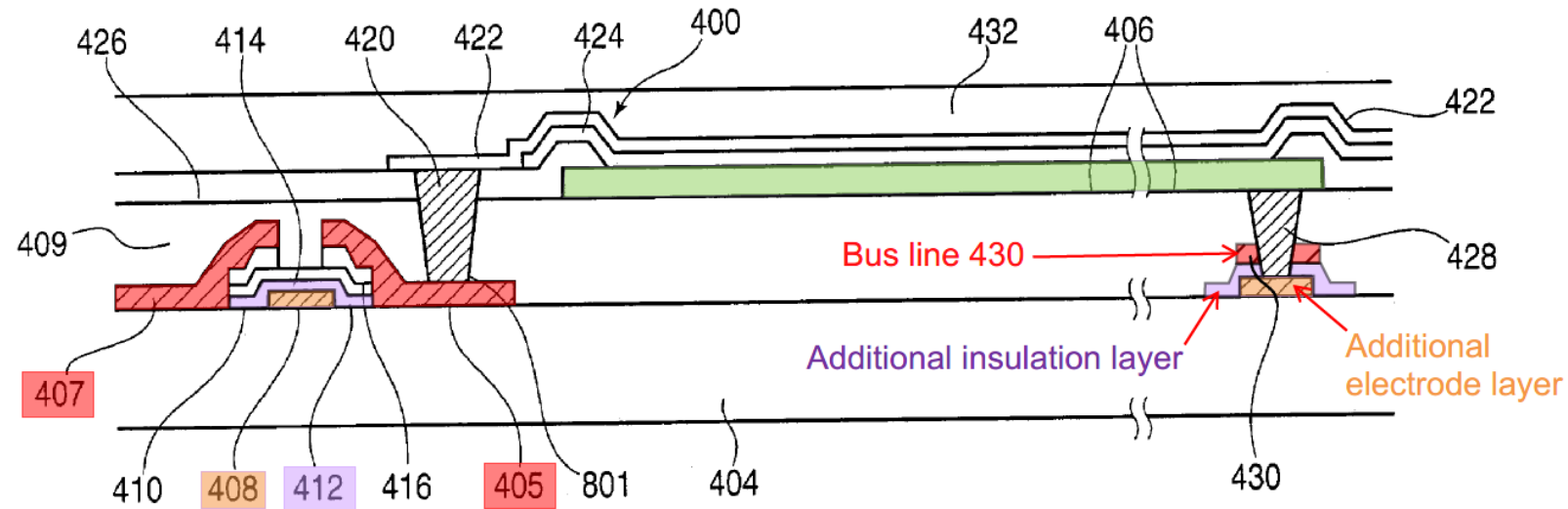
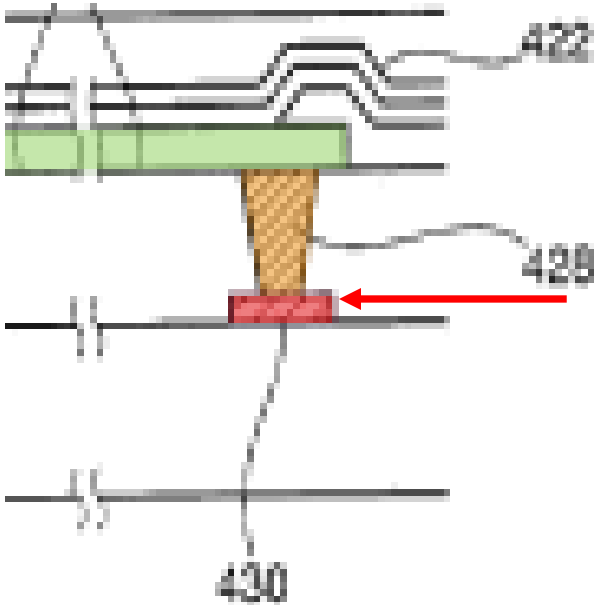
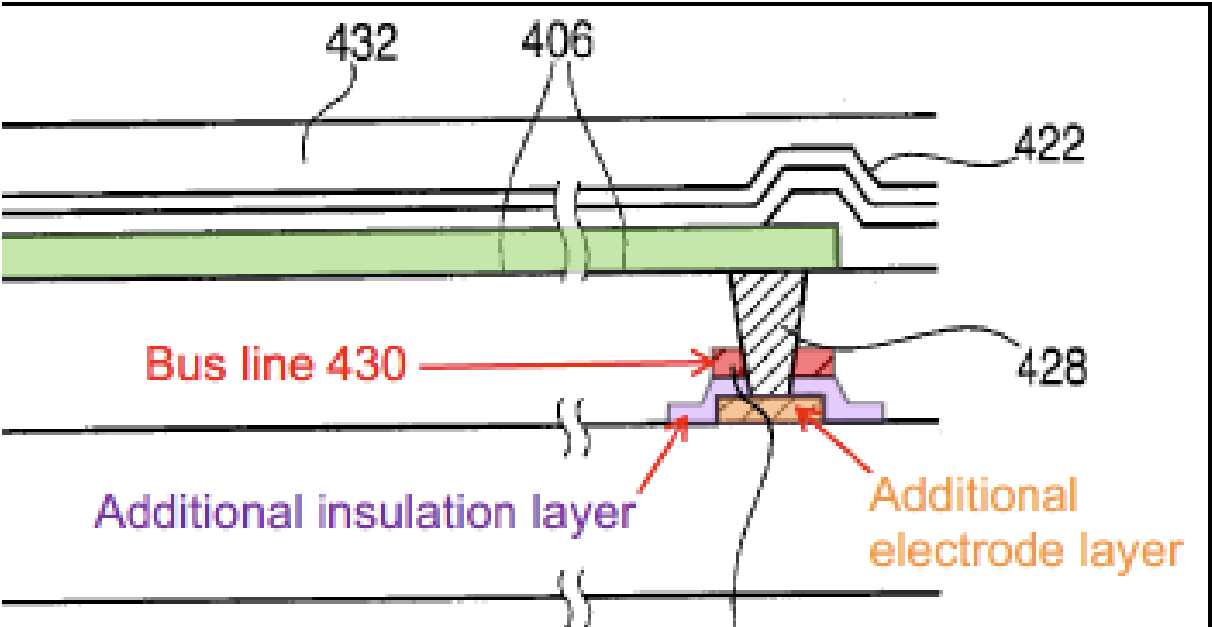


Fig. 4
(MODIFIED)

Petition at 48 (proposed modification of Weaver and Song)

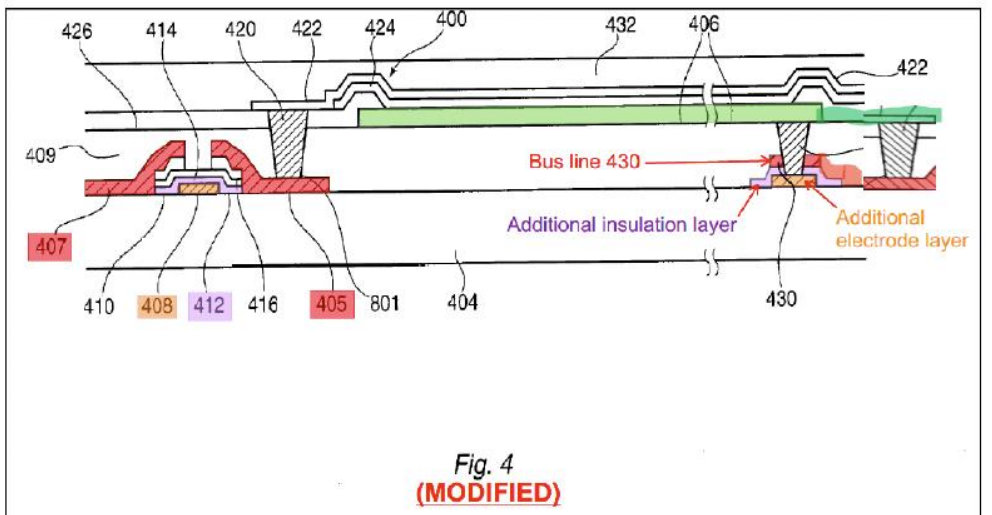
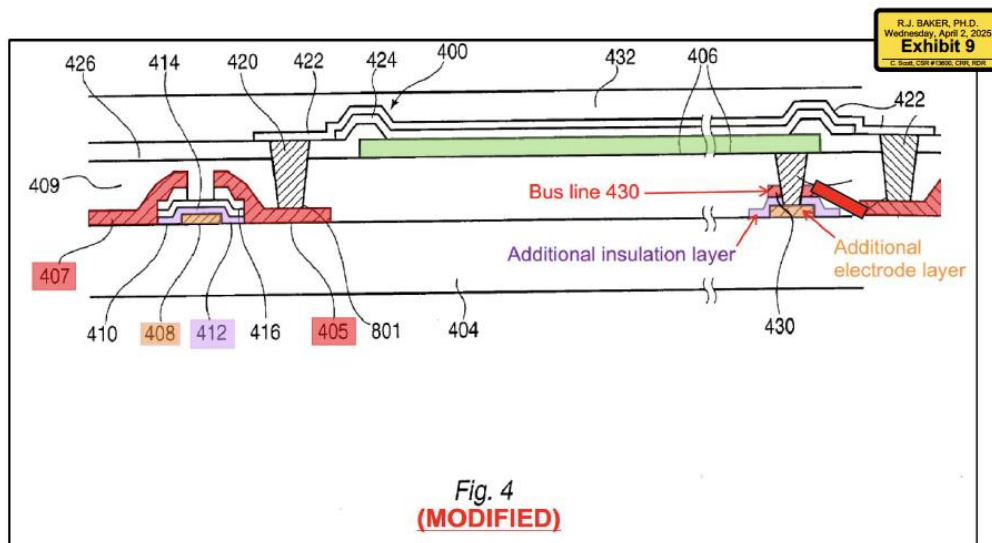
Contradiction: Proposes Modifications Require Changing to the Process



Bus line 430 stops the etch process from eating away the layers below (*i.e.*, the process's etch will not go through the material of the bus line)

Ground 4: Weaver and Lee 149 § 103, Claims 10–11

Hindsight Methodology on the Record



Q As we sit here today, what is your best estimate of the combined time that you spent preparing the declarations of the '509 and '733 patents?

A 115 hours.

Ex. 2029, 295:12–16

A I made a mistake because they're shorting out the LEDs, so I'm doing something wrong here. Hold on, let me look at the claim language. This is the problem with doing stuff in the deposition. I think I did the same thing in the other one where I shorted out both sides of the LED. So that's wrong. Exhibit 9 -- let me read them, read the claim again.

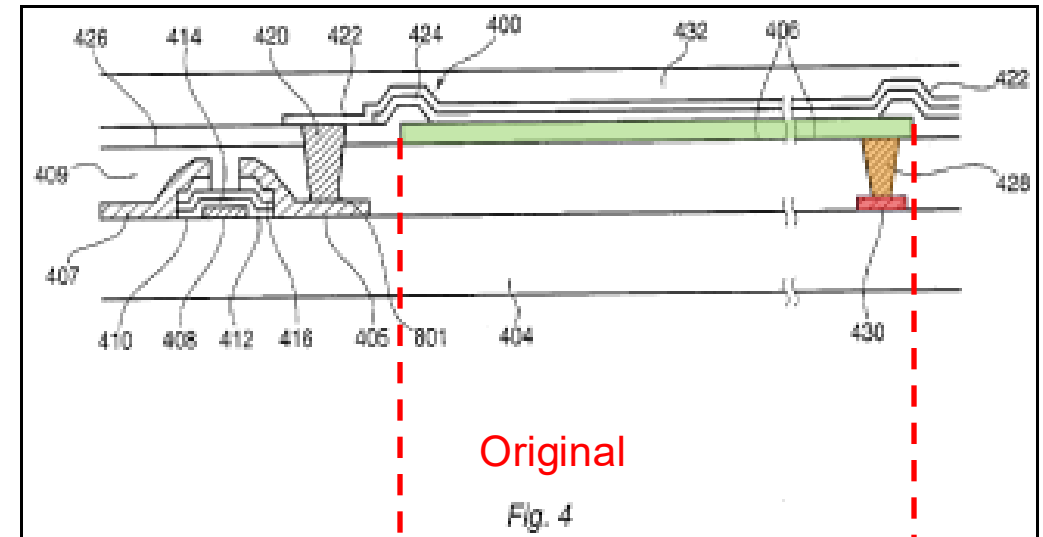
Ex. 2028, 206:16, 20–21

Optronix Sciences LLC, Ex. 2031
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More Hindsight: Tangled In Petitioner's Own Rules

pixels (which often number in the millions). Therefore, the various lines supplying power to a pixel can only be made so wide. A POSITA would have understood that 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 reducing the resistance of the wires powering and supplying signals to the pixel, i.e., decreased pixel resistance, beyond what can be provided by existing possible line widths. Making millions of lines “a little wider” would result in an unwanted reduction in pixel density and resolution (larger area pixels). A POSITA would have understood that 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. Therefore, I disagree that hindsight was used.

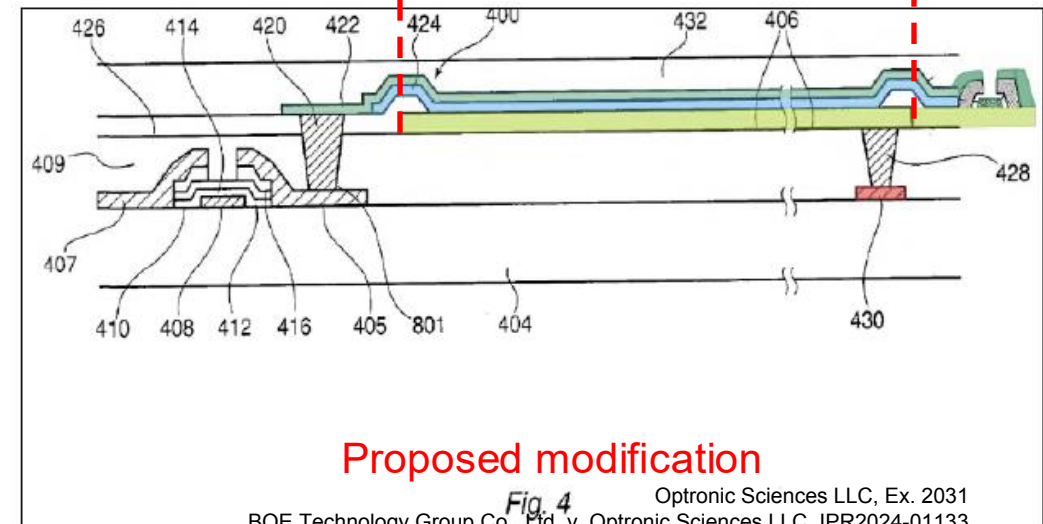
Ex. 1020 (Baker Decl. ISO Reply), ¶ 35



Original

Fig. 4

Ex. 1004, Fig. 4 (annotated)



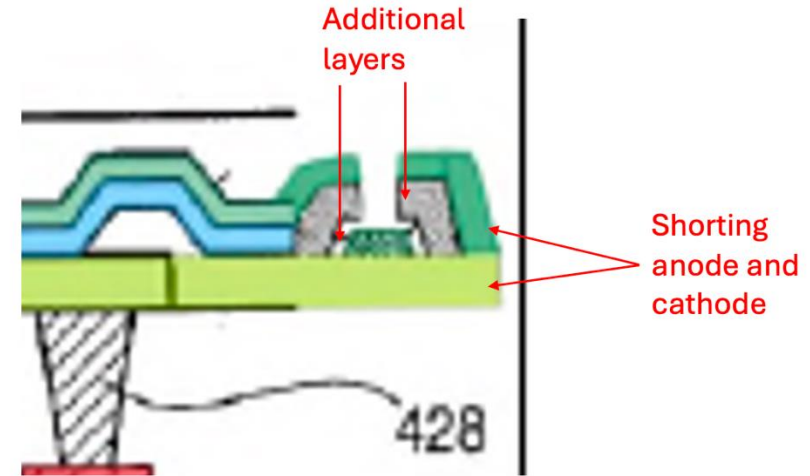
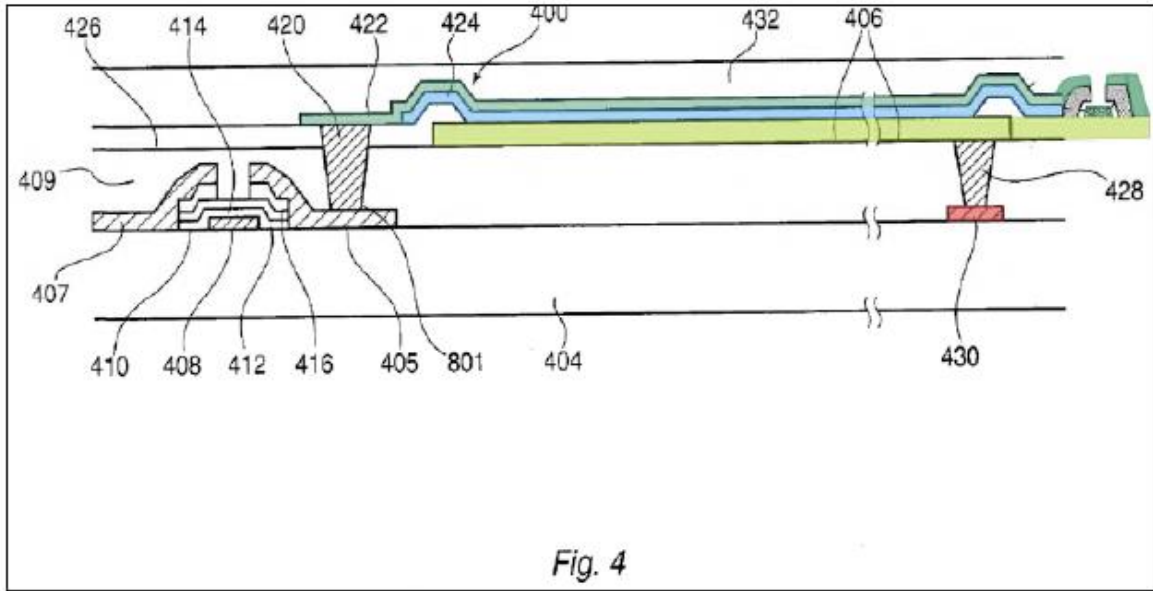
Proposed modification

Fig. 4

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Petitioner's Reply at 19, 22

Changes to the Process



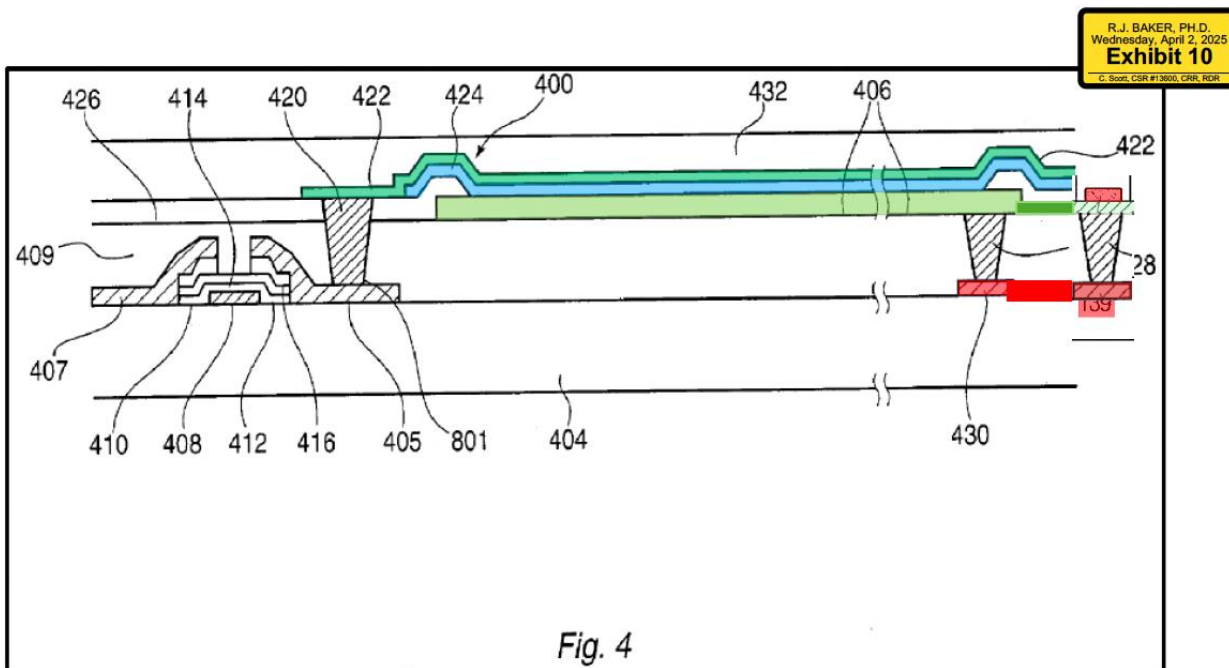
modifications fails and would be non-functional due to the short circuit. MPEP

§ 2143.01(V) (“The proposed modification cannot render the prior art unsatisfactory for its intended purpose”).

PO Sur-Reply at 17–18

Ground 5: Weaver and Bae § 103, Claims 10–11

Hindsight Methodology on the Record



Q 139 is on the same layer as 422. Here? Or do I move it up a little higher, one layer higher?

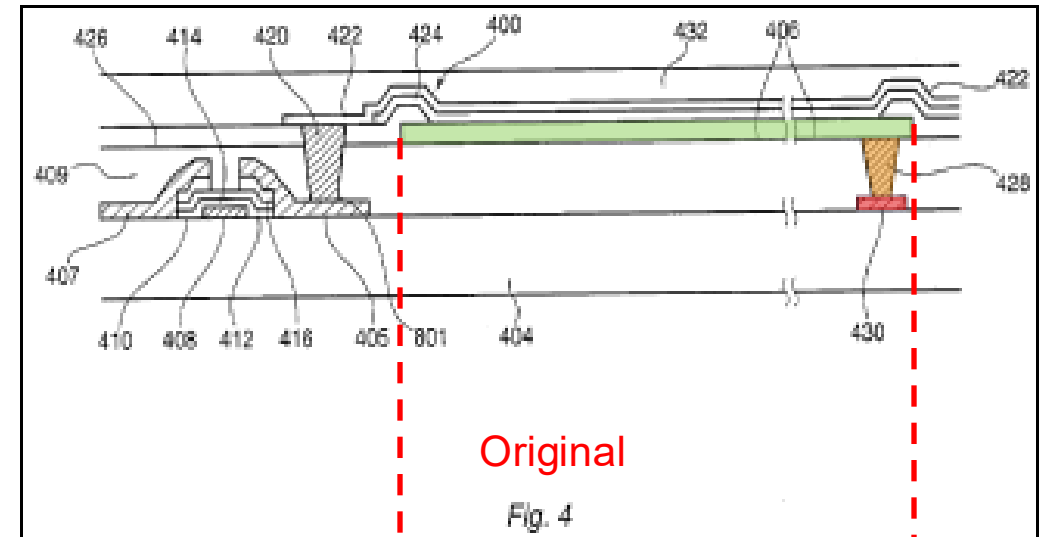
A For Claim 11, I think it requires that the -- let me read Claim 11. Second auxiliary electrode, just 139, is on the second electrode layer, Weaver's cathode 22. So we want the 139, the red, to be on the same level as the 422.

Ex. 2028, 205:16–22

More Hindsight: Tangled In Petitioner's Own Rules

pixels (which often number in the millions). Therefore, the various lines supplying power to a pixel can only be made so wide. A POSITA would have understood that 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 reducing the resistance of the wires powering and supplying signals to the pixel, i.e., decreased pixel resistance, beyond what can be provided by existing possible line widths. Making millions of lines “a little wider” would result in an unwanted reduction in pixel density and resolution (larger area pixels). A POSITA would have understood that 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. Therefore, I disagree that hindsight was used.

Ex. 1020 (Baker Decl. ISO Reply), ¶ 35



Ex. 1004, Fig. 4 (annotated)

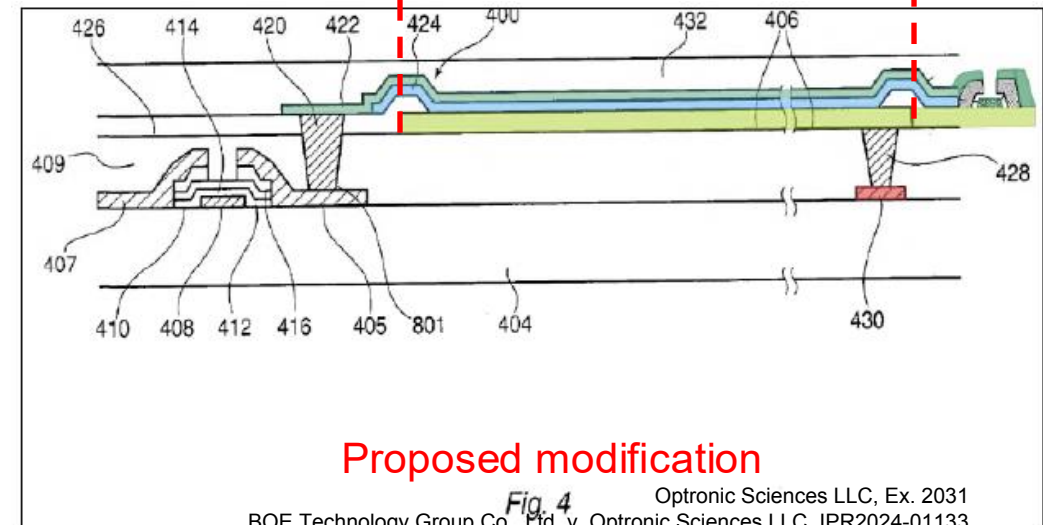
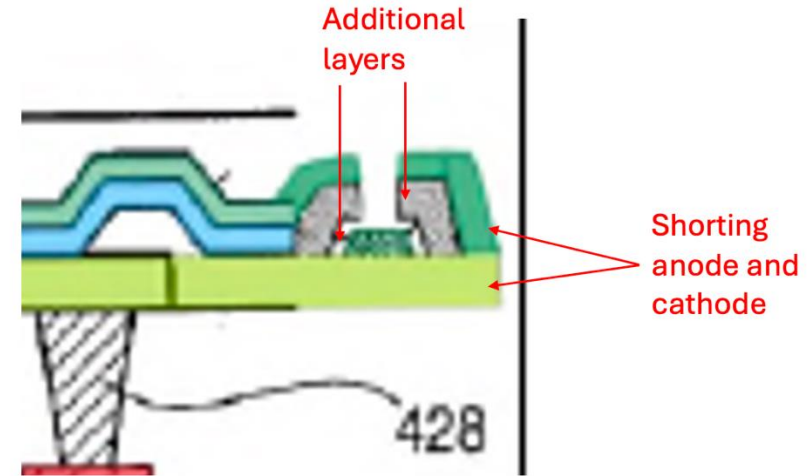
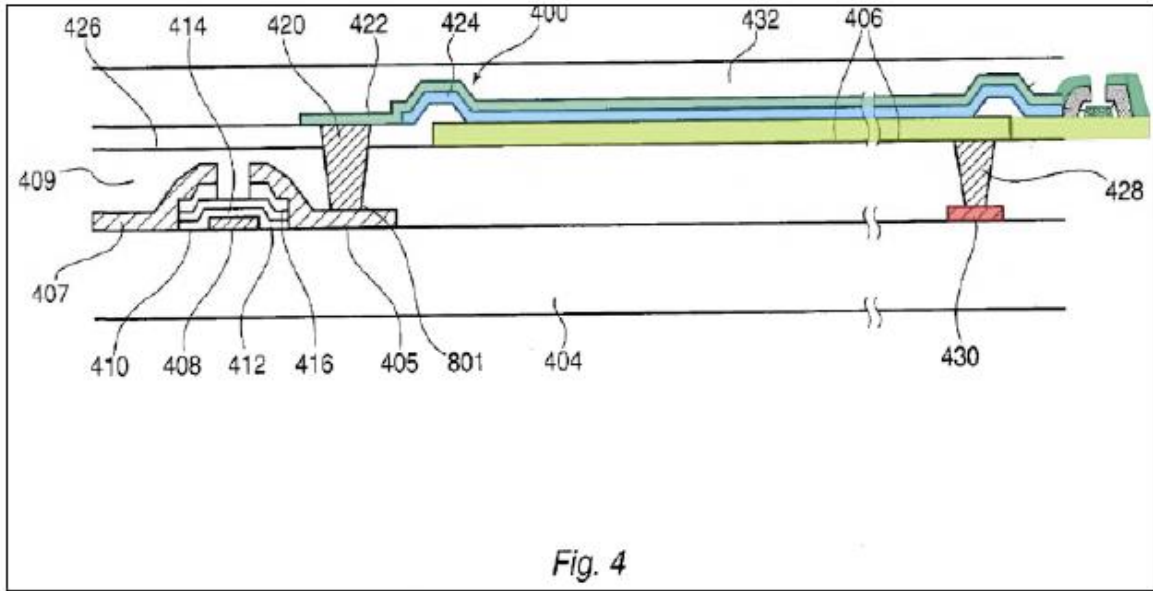


Fig. 4
OpTronic Sciences LLC, Ex. 2031
BOE Technology Group Co., Ltd. v. OpTronic Sciences LLC, IPR2024-01133
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Petitioner's Reply at 19, 22

Changes to the Process



modifications fails and would be non-functional due to the short circuit. MPEP
§ 2143.01(V) (“The proposed modification cannot render the prior art unsatisfactory
for its intended purpose”).

PO Sur-Reply at 17–18

Ground 6: Weaver and Lee053 in view of Gupta or Han, Claims 1–5, 9, 12–13

Non-Analogous Art: Han Describes Large-Area Flat Panel Light Sources

Inches, not millimeters

Large area flat panel light sources have significantly different design considerations than pixels in a display, due in large part to the relative size differences. . . . While this is beneficial when the relative size of the OLED is *inches, not millimeter or smaller, the design is not required or used for pixels for in LED displays due to their significantly smaller size.* POSITAs at the time of the invention (and even today) would have understood that the uniformity and current distribution concerns at the inch-scale **do not similarly apply at the sub-millimeter-scale for pixels of LED displays.**

Ex. 2026, ¶159 (Bretschneider Decl.)
(emphasis added)

[0002] 1. Field of the Invention

[0003] The present invention relates to an organic-light-emitting-diode (OLED) flat-panel light-source apparatus and, more particularly, to an OLED flat-panel light-source apparatus and a method of manufacturing the same, which may improve the uniformity of electrical and optical properties of a **large-area** OLED flat-panel light-source apparatus required for an illumination system and a display device.

Ex. 1010 at [0003]



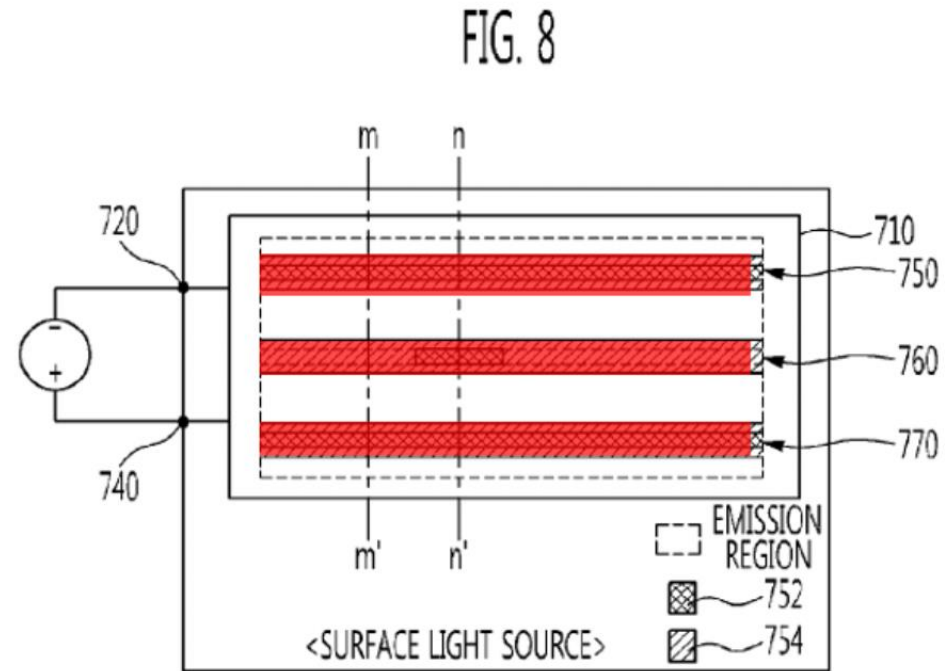
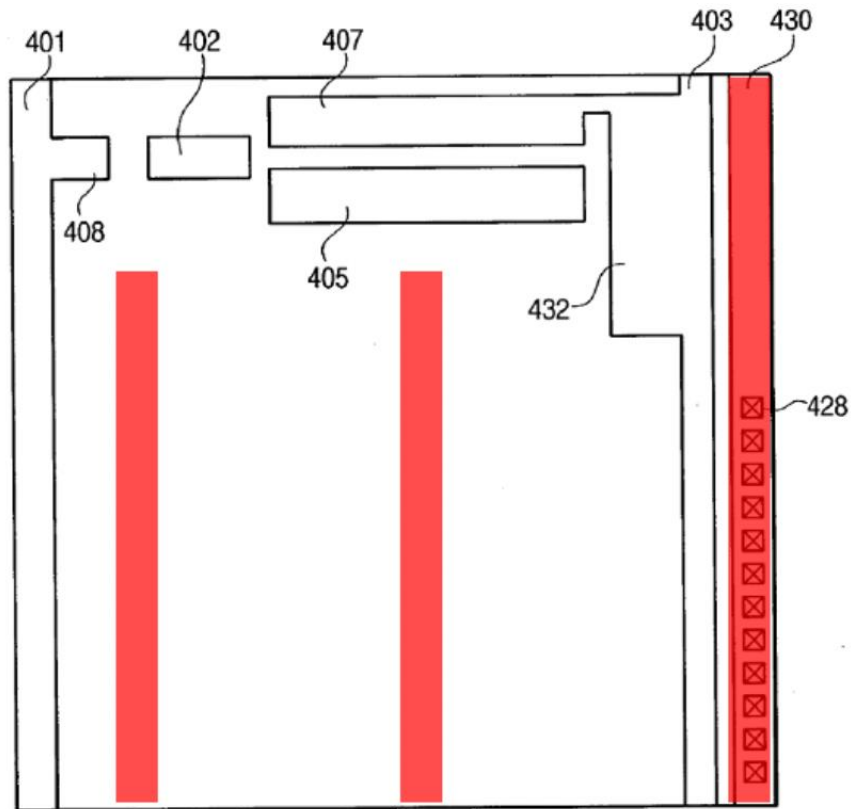
FIGURE 2.7 "V-LUX" OLED DESK LAMP AND "LIVINGSHAPES" INTERACTIVE OLED LIGHT AND MIRROR
Sources: Blackbody, Philips

Ex. 2026, ¶123 (Bretschneider Decl.)

Optronic Sciences LLC, Ex. 2031
BOE Technology Resources, Inc., IPR2024-01133
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No-Hindsight Solution:

If a POSITA were instructed to apply Han's teachings about branched electrodes to Weaver, the POSITA would do something like this to repeat Weaver's bus line several times for improved current distribution:



Ex. 2026 (Bretschneider) at 69–70,
citing Ex. 1004 (Modified Weaver) and Ex. 1010 (Annotated Han)

Gupta Discloses a Mesh Resistor

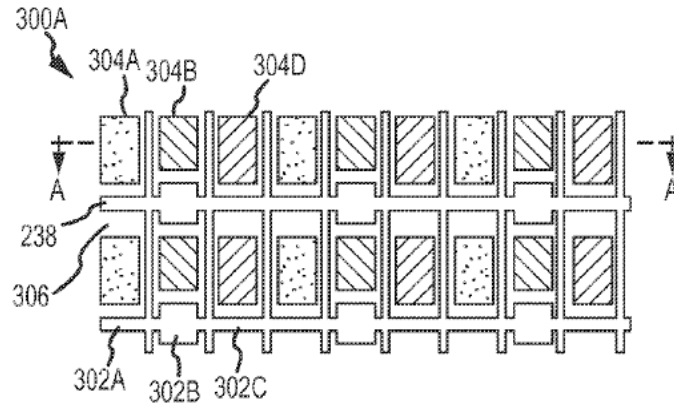


FIG. 3A

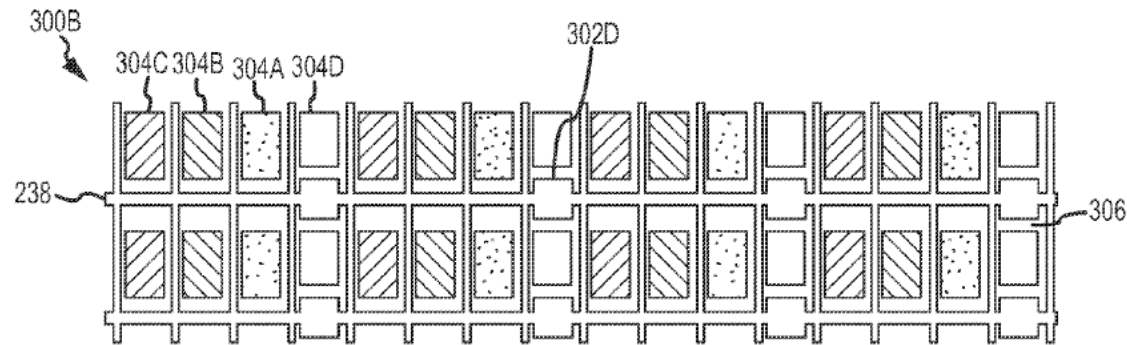


FIG. 3B

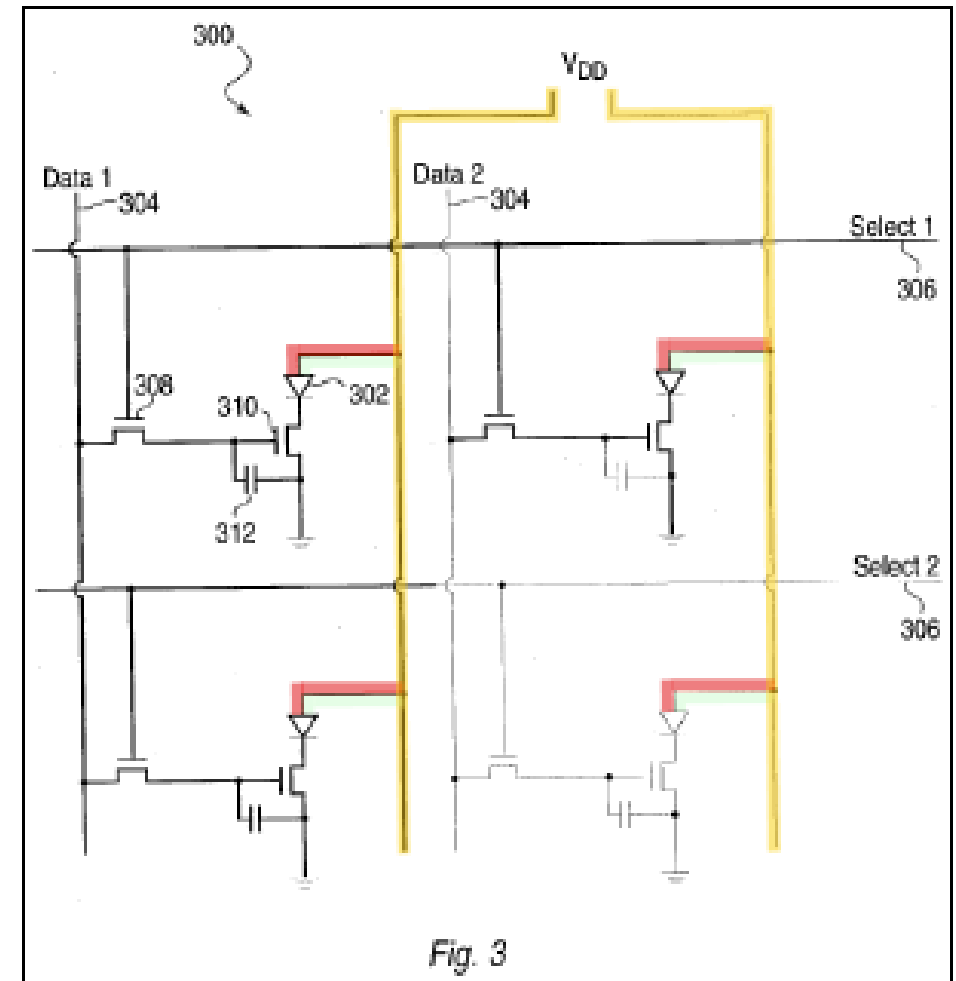
Ex. 1009 at Figs. 3A, 3B

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BOE Technology Group Co., Ltd. v. Optronic Sciences LLC, IPR2024-01133
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Hindsight: No Proposed Modification to Weaver's Structure

The Petition uses an annotated circuit schematic of Weaver and the corresponding annotated structure, with no modifications depicted for the corresponding structure. See Petition at 76–77. Petitioner's expert repeatedly emphasized that the schematic does not actually correspond to any physical change. He testified that there is “no physical correlation between a schematic and a layout or cross-sectional view” and that it “doesn't make sense” that a specific structure has a physical relation to a schematic. Ex. 2028 at 66:12–13. Thus, Petitioner's

POR at 48



POR at 47 (showing Petitioner's annotations to Weaver)
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Ground 7: Weaver and Lee053 in view of Gupta or Han, Claims 6–8

Same Flaws

Ground 8: Weaver and Song in view of Gupta or Han, Claims 6–8

Same Flaws

Ground 9: Weaver and Lee¹⁴⁹ in view of Gupta or Han, Claims 10–11

Same Flaws

Ground 10: Weaver and Bae in view of Gupta or Han, Claims 10–11

Same Flaws

Thank you.