

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

APPLE INC.,

Plaintiff,

v.

MASIMO CORPORATION and
SOUND UNITED, LLC,

Defendants.

C.A. No. 22-1377-MN-JLH

JURY TRIAL DEMANDED

MASIMO CORPORATION, SOUND
UNITED, LLC

Counter-Claimants,

v.

APPLE INC.

Counter-Defendant.

APPLE INC.,

Plaintiff,

v.

MASIMO CORPORATION and
SOUND UNITED, LLC,

Defendants.

C.A. No. 22-1378-MN-JLH

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CERCACOR LABORATORIES, INC.,
SOUND UNITED, LLC

Counter-Claimants,

v.

APPLE INC.

Counter-Defendant.

REBUTTAL EXPERT REPORT OF STEVEN WARREN

Signed: 
Date: December 15, 2023

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[REDACTED]

construction of “cavity”—“a hollowed-out space within a solid body”—the Accused Products do not have a “cavity” in which any LEDs are recessed. In particular, the alleged “cavity” in the Accused Products is not a “a hollowed-out space within a solid body.” Instead, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

474. I understand that, considering Apple’s proposed construction for “cavity,” Dr. Madisetti still contends that the Folsom Module includes a “cavity” into which three LEDs are “recessed,” [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Madisetti Op. Rpt. at E-5. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

487. **First**, under Apple’s proposed construction and the plain and ordinary meaning of the claim, Dr. Madisetti fails to identify a “light block” that accommodates the detector assembly, i.e., all the detectors in the device. Consistent with the claim language and specification, Apple’s proposed construction requires that a device’s “detector assembly” comprise all its detectors. In my Opening Claim Construction Declaration, I explained my understanding that “light block” is a coined term and, thus, cannot be construed broader than the disclosure in the ’911 patent specification. Warren Op. CC Decl. ¶ 173. The ’911 patent’s only description of a structure that can perform the function of the “light block” is the “shoe box 3200.” ’911 patent at 15:14-15; *see also* Warren Op. CC Decl. ¶¶ 178-82. The ’911 patent explains that the shoe box 3200 “accommodates the detector assembly 2400,” which the ’911 patent consistently presents as including all the device’s detectors. Warren Op. CC Decl. ¶¶ 182-84; *see also* ’911 patent at 4:32-33, 6:4-55, 9:2-10, 9:34-64, 12:4-58, 13:14-14:52, 15:4-16:9, 19:5-27, Figs. 3-4, 9, 10A-D, 19-21, 24-26, 29A-B, 31A-H, 32A-H, 34A-H, 40, 46. Indeed, the ’911 patent provides no disclosure—explicit or implicit—of a “light block” that accommodates only a subset of a device’s detectors. Accordingly, under Apple’s proposed construction and the plain and ordinary meaning of the term, the “light block” must “accommodate[] the *entire* detector assembly that includes *all of the detectors*.” Warren Op. CC Decl. ¶ 175 (emphasis added).

488. Applying Apple’s proposed construction and the plain and ordinary meaning of the claim language, [REDACTED]

[REDACTED] I understand that Dr. Madisetti, however, instead contends that [REDACTED]
[REDACTED]

[REDACTED] Madisetti Op. Rpt. at E-18–
E-19. Thus, under Apple’s proposed construction of “a light block [at least partially] surrounding

[REDACTED]

the at least one detector,” Dr. Madisetti fails to identify a “light block” that accommodates the detector assembly [REDACTED]

[REDACTED]

489. Further, Dr. Madisetti’s opinion that the [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

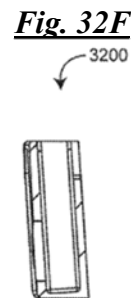
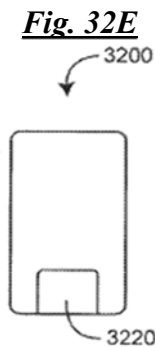
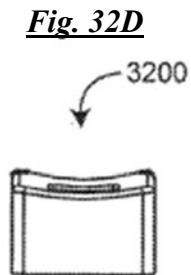
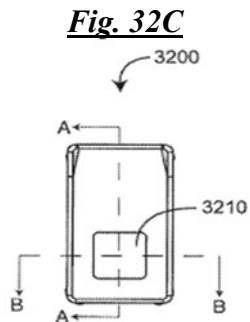
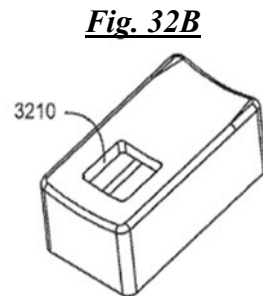
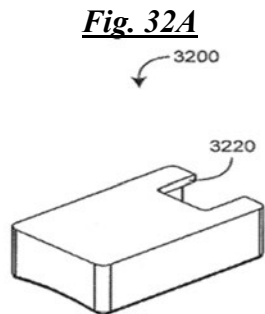
[REDACTED]

[REDACTED]

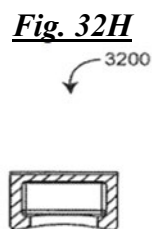
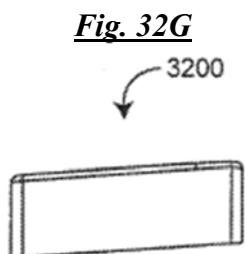
[REDACTED]

[REDACTED]

490. *Second*, under Apple’s proposed construction and the plain and ordinary meaning of “a light block [at least partially] surrounding the at least one detector,” Dr. Madisetti fails to identify a “light block” that has the shoebox shape required by the ’911 patent’s specification. Particularly, as explained above, because “light block” is a coined term, I understand that “light block” in both Claims 1 and 19 cannot be construed broader than the disclosure in the specification of the ’911 patent. As I explained in my Opening Claim Construction Declaration, the ’911 patent “only discloses one structure that can perform any of the[] functions of a ‘light block’—namely, ‘shoe box 3200.’” Warren Op. CC Decl. ¶ 180. Shoe box 3200 is depicted in Figures 32A-H of the ’911 patent, as excerpted below:



SECTION A-A



SECTION B-B

491. As is clear from Figures 32A-H of the '911 patent, the shoe box 3200 described by the specification has a shoe box shape in that it is a rectangular prism, or cuboid. [REDACTED]

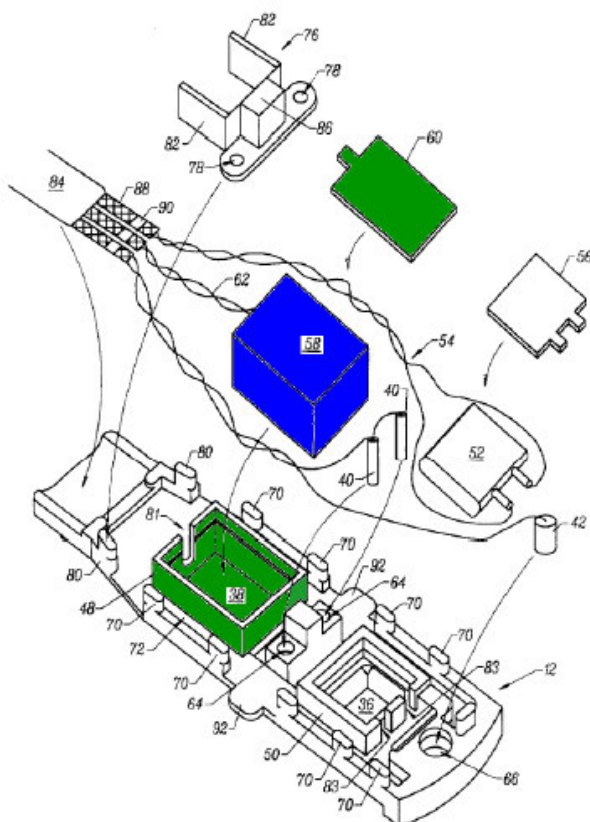


FIG. 2

498. **Third**, Dr. Madisetti’s doctrine of equivalents opinion for the “light block” also fails because applying that theory would vitiate and read out the “light block” from the claim. Particularly, as I explained above, I understand that “light block” is a coined term and, thus, cannot be construed broader than the disclosure in the ’911 patent specification. Thus, Dr. Madisetti cannot now rely on the doctrine of equivalents to broaden the limited scope of the particular “light block” that is claimed.

499. Even if the Accused Products include “a light block [at least partially] surrounding the at least one detector” under the doctrine of equivalents, Dr. Madisetti has not provided a hypothetical claim that would cover this interpretation under the doctrine of equivalents, and any such hypothetical claim would ensnare the prior art and vitiate the claim language.

[REDACTED]

Products do not have an “opening” under Apple’s proposed construction, which is the more appropriate construction, and (2) even if the Accused Products have an opening, they do not have “only one opening.”

i. The Accused Products Do Not Have An “Opening”

509. Even if the Accused Products have a shoebox structure, which they do not, they do not include an “opening,” at least under Apple’s proposed construction.

510. I understand that the parties propose the following constructions of “opening” as used in the ’911 patent:

Masimo’s Proposed Construction	Apple’s Proposed Construction
Plain and ordinary meaning, which Masimo says is “the area of the light block through which light is configured to pass”	“empty space”

511. Apple’s proposed construction is correct for the reasons stated in my declaration regarding claim construction. Warren Op. CC Decl. ¶¶ 200-11. For example, I understand that different claim terms are presumed to have different meanings, and since some claims of the ’911 patent require an “opening” while other claims require a “window,” I understand that “opening” and “window” must have different meanings. Warren Op. CC Decl. ¶ 207. In addition, a POSA would understand from the prosecution history that the applicant amended Claims 1 and 19 from requiring a “window” to requiring an “opening” in order to overcome prior art. Warren Op. CC Decl. ¶ 209.

512. It is my opinion that there is no “opening” in the purported shoebox structure of the Accused Products. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

513.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

514.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

515. Accordingly, the Accused Products do not have an “opening” that comprises “empty space”; instead, each purported opening is filled with a sapphire disc.

Doctrine of Equivalents

516. I understand that Dr. Madisetti also opines that the Accused Products have an “opening” under Apple’s proposed construction under the doctrine of equivalents. Madisetti Op.

[REDACTED]

Rpt. at E-27–E-28. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].

517. **First**, I disagree with Dr. Madisetti at least because an opening and a window do not allow light to pass in substantially the same way. Although both an opening and a transparent window allow light to pass, a window provides a different means of allowing light to pass because it does not allow anything but light to pass. Therefore, a window protects the interior of the device from debris, whereas an opening would not. Additionally, window transparency is a function of wavelength (color), which limits the amount of light that is allowed to pass in comparison to an opening, which allows the passage of all wavelengths of light. By controlling the amount of light that passes, a window provides a means of consistent measurements whereas an opening may be impacted by debris, the user’s hair, or other particles.

518. **Second**, Dr. Madisetti’s opinion fails based on prosecution history estoppel. Specifically, as I explained in my Opening Claim Construction Declaration, in rejecting proposed claims of the ’911 patent, the examiner noted that prior art reference Schulz (U.S. Patent No. 6,580,086) discloses “the shoebox structure further comprising a **window** on a top portion of the shoebox structure.” Warren Op. CC Decl. ¶¶ 193-96 (emphasis added); *see also* ’911 File History, Nov. 9, 2020 Office Action, at 3. In response to that Office Action, the applicant proposed the below amendment to the language of what became Claim 1 to use the word “opening” instead of “window”:

21. (Currently Amended) A physiological monitoring device comprising:

at least three LEDs recessed into a cavity, the at least three LEDs configured to emit light of at least three different wavelengths;

at least one detector configured to detect at least a portion of the light emitted from the at least three LEDs after at least a portion of the light has been attenuated by tissue, the at least one detector configured to output at least one signal responsive to the detected light;

a light block surrounding the at least one detector, the light block comprising a shoebox structure configured to recess the at least one detector into the shoebox structure, wherein the shoebox structure is at least partially formed of a black material, wherein a top of the shoebox structure includes only one opening through which light is configured to pass~~further comprising a window on a top portion of the shoebox structure, the opening window~~ comprising an area smaller than a detection surface area of the at least one detector; and

a processor configured to receive and process one or more signals responsive to the outputted at least one signal and determine a physiological parameter of a user responsive to the one or more signals.

'911 File History, Feb. 9, 2021 Response to Office Action, at 2-3. Therefore, in light of the applicant's amendment to the claim language, I understand that Dr. Madisetti cannot now opine that the Accused Products' transparent windows infringe the claimed "opening" under the doctrine of equivalents.

519. **Third**, Dr. Madisetti's application of the doctrine of equivalents to the "opening" limitation would ensnare the prior art. For example, as I explained in my Opening Report and as depicted in Figure 3 of Takatani below, Takatani discloses a window that includes a transparent material, particularly optically clear, mechanically hard material 20. Warren Op. Rpt. ¶¶ 2161-65; APL_DEL00038059 (Takatani) at 4:26-39.

520.

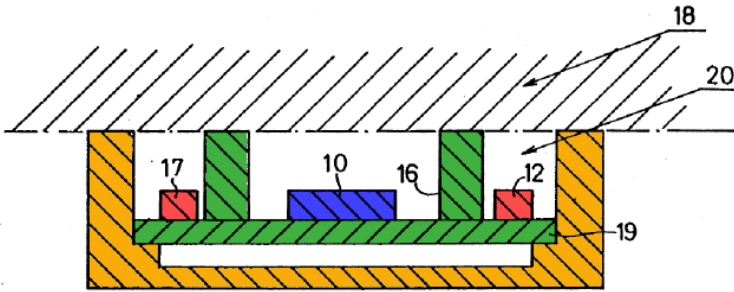


FIG.3

521. Additionally, as I explained in my Opening Report and as depicted in Figure 2 of Nierlich below, Nierlich also discloses a window 38 that includes a transparent material. Warren Op. Rpt. ¶¶ 2003-07; APL_DEL01124773 (Nierlich). Specifically, Nierlich explains that the transparent plastic window 38 is injection molded into the bottom (as depicted in Figure 2) of the detector enclosure 48. Nierlich at 4:26-31.

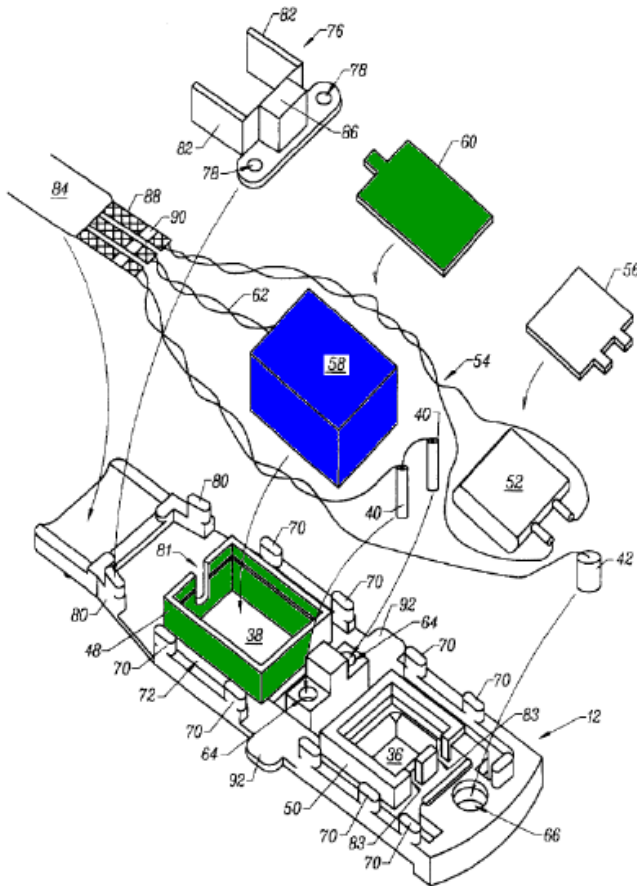


FIG. 2

522. Accordingly, Dr. Madiseti's doctrine of equivalents opinion to broaden the scope of the claimed "opening" to read on a window including a "transparent material" would ensnare the prior art, including Takatani and Nierlich.

523. ***Fourth***, Dr. Madisetti’s application of the doctrine of equivalents to the “opening” limitation would vitiate the “opening” requirement and read it out of the claim entirely. Generally, and as I explained above with regard to the teachings of the Takatani and Nierlich references, conventional optical sensors included transparent windows through which light passed to photodiodes. Thus, Dr. Madisetti’s doctrine of equivalents opinion would vitiate the “opening” limitation because, under his view, a conventional optical sensor’s transparent window would meet this limitation.

524. Even if the Accused Products include an “opening” under the doctrine of equivalents, Dr. Madisetti has not provided a hypothetical claim that would cover this interpretation under the doctrine of equivalents, and any such hypothetical claim would ensnare the prior art and vitiate the claim language.

525. For the reasons set forth above, the Accused Products do not have an “opening” under Apple’s proposed construction of the term literally or under the doctrine of equivalents and therefore do not infringe Claim 2 of the ’911 patent.

ii. The Accused Products Do Not Have “Only One Opening”

526. Even if the Accused Products have a shoebox structure that includes “openings,” which they do not, the Accused Products do not include “a top of the [shoebox structure / light block] [that] includes only one opening”³⁶ under either party’s proposed construction.

527. I understand that the parties proposed the following constructions of “a top of the [shoebox structure / light block]” as used in the ’911 patent:

Masimo’s Proposed Construction	Apple’s Proposed Construction
Plain and ordinary meaning, which Masimo says is “the area that has the opening for light to pass through”	“the uppermost structure that covers the [shoebox structure/light block]”

528. Apple’s proposed construction is correct for the reasons stated in my declaration regarding claim construction. Warren Op. CC Decl. ¶¶ 186-99. For example, as explained in my Opening Claim Construction Declaration, a POSA would have understood from the claim

³⁶ Claim 1 recites “a top of the shoebox structure includes only one opening,” while Claim 19 recites “a top of the light block comprises only one opening.” The slight difference in claim language does not impact my analysis so, as noted with respect to Claim 19 below, I address both claim limitations in this section.

[REDACTED]

language and the prosecution history that the claim term “top” refers to an uppermost structure and an uppermost position relative to the base of the light block. Warren Op. CC Decl. ¶¶ 186-99.

529. *First*, for the reasons stated above with respect to “a light block [at least partially] surrounding the at least one detector,” if Apple’s proposed construction of that term is correct, the light block must accommodate the entire detector assembly comprising all four photodiodes of the Accused Products. In that case, the “top of the [shoebox structure / light block]” under either party’s proposed construction would be the back crystal, which includes four purported “opening[s] through which light is configured to pass” positioned above “the at least one detector” because each of the four photodiodes detects light passing through each of four respective openings. [REDACTED]

[REDACTED]

[REDACTED] Therefore, the top of the purported light block or shoebox structure does not have “only one opening.”

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

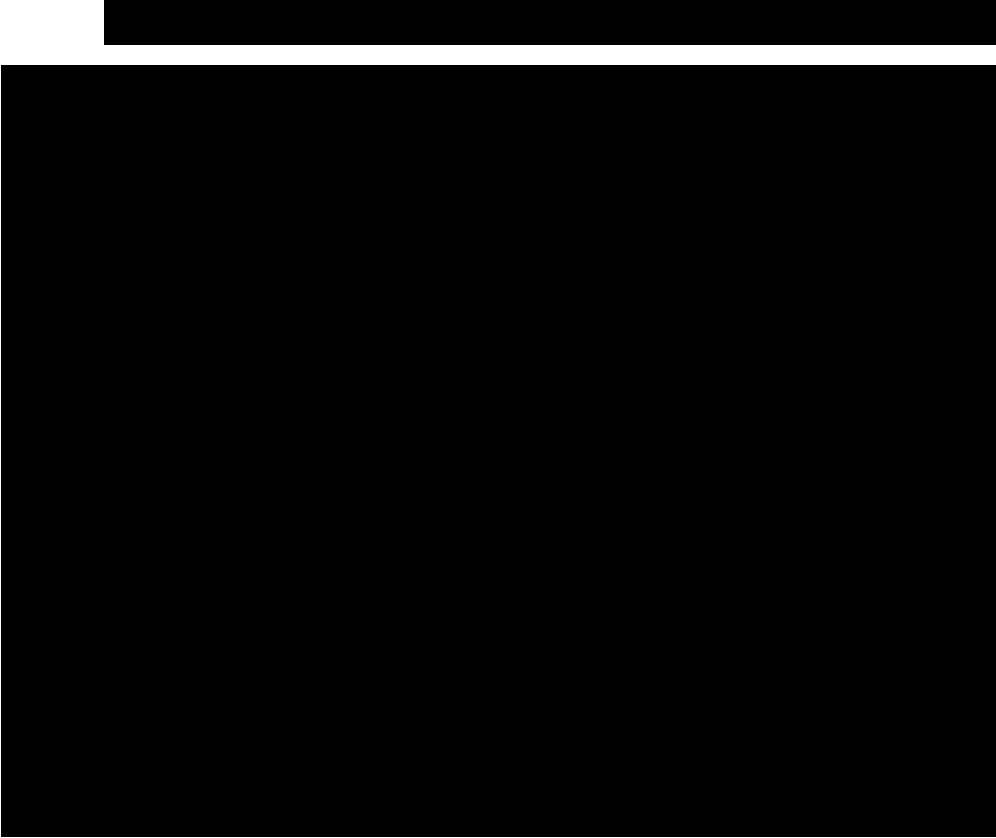
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



530. *Second*, under Apple’s proposed construction of “a top of the [shoebox structure / light block]”—“the uppermost structure that covers the [shoebox structure/light block]”—there is more than one opening. Dr. Madisetti agrees in some respects. Specifically, Dr. Madisetti contends that the sapphire disc is an “opening” in the “top” of the shoebox structure, thus he too points to at least a portion of the back crystal as the “top.” Madisetti Op. Rpt. at E-19; *see also id.* (noting the “light block” comprises “portions of the optical barrier, substrate/base, and back crystal”). Therefore, if there is a shoebox structure or light block (which there are not), Dr. Madisetti and I are in agreement that the back crystal would be the “top,” but we disagree as to whether it is the entire back crystal structure (my view) or an unspecified “area that has the only

[REDACTED]

one opening through which light is configured to pass to the detector” (Dr. Madisetti’s view). Madisetti Op. Rpt. at E-16. Dr. Madisetti does not define or identify which portion or “area” of the back crystal comprises the top and which portion or “area” of the back crystal does not comprise the top. Indeed, the back crystal is not subdivided into different structures comprising one sapphire disc each; rather, it is a singular structure that includes four sapphire discs. Therefore, in my view, the “top” is the uppermost structure which would include the entire back crystal and all of its sapphire discs (the purported “openings”). Accordingly, the top of the purported light block or shoebox structure does not have “only one opening.”

531. *Finally*, even under Masimo’s proposed construction of “a top of the [shoebox structure / light block]”—“the area that has the opening for light to pass through”—the entire back crystal includes sapphire discs for light to pass through, thus the entire area of the back crystal that comprises the four sapphire discs would meet Masimo’s proposed construction and, therefore, the top would have more than one opening. Accordingly, even under Masimo’s proposed construction, the top of the purported light block or shoebox structure does not have “only one opening.”

532. For the reasons set forth above, the Accused Products do not have “only one opening.”

Doctrine of Equivalents

533. I understand that Dr. Madisetti also opines that the Accused Products have “a top of the shoebox structure / light block” under Apple’s proposed construction under the doctrine of equivalents. Madisetti Op. Rpt. at E-27. While Dr. Madisetti does not expressly identify what the “top of the shoe box structure / light block” corresponds to, as explained above, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Madisetti Op. Rpt. at E-19–E-20. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Madisetti Op. Rpt. at E-27. Dr. Madisetti’s position under the doctrine of equivalents fails for several reasons.

534. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

535. *Second*, Dr. Madisetti’s doctrine of equivalents opinion fails based on prosecution history estoppel. As depicted in the amendment to what became Claim 1 of the ’911 patent, excerpted and annotated below, I understand that, during prosecution of the ’911 patent, the applicant amended the claim language to further specify that a “*top* of the shoebox structure”—rather than some other portion of the shoebox structure—is the structure that “includes only one opening through which light is configured to pass.”

21. (Currently Amended) A physiological monitoring device comprising:

at least three LEDs recessed into a cavity, the at least three LEDs configured to emit light of at least three different wavelengths;

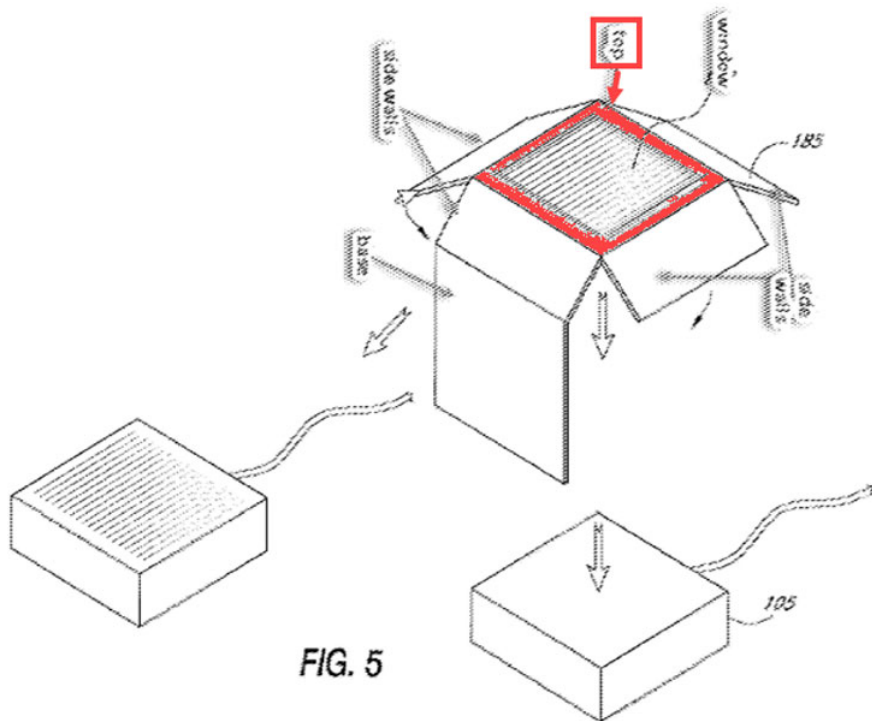
at least one detector configured to detect at least a portion of the light emitted from the at least three LEDs after at least a portion of the light has been attenuated by tissue, the at least one detector configured to output at least one signal responsive to the detected light;

a light block surrounding the at least one detector, the light block comprising a shoebox structure configured to recess the at least one detector into the shoebox structure, wherein the shoebox structure is at least partially formed of a black material, wherein a top of the shoebox structure includes only one opening through which light is configured to pass~~further comprising a window on a top portion of the shoebox structure, the opening window~~ comprising an area smaller than a detection surface area of the at least one detector; and

a processor configured to receive and process one or more signals responsive to the outputted at least one signal and determine a physiological parameter of a user responsive to the one or more signals.

'911 File History, Feb. 9, 2021 Response to Office Action, at 2-3.

536. The applicant proposed this amendment to overcome a rejection based on prior art reference Schulz (U.S. Patent No. 6,580,086). Specifically, as I explained in my Opening Claim Construction Declaration, in rejecting the pending claims of the '911 patent, the examiner noted that Schulz discloses "the shoebox structure further comprising a window on a *top portion* of the shoebox structure." Warren Op. CC Decl. ¶¶ 193-96 (emphasis added); *see also* '911 File History, Nov. 9, 2020 Office Action, at 3. As explained in my Opening Claim Construction Declaration, in their rejection, the examiner annotated the uppermost structure in Figure 5 of Schulz, excerpted and annotated below, to specifically identify the "top" of the shoebox as the uppermost structure. Warren Op. CC Decl. ¶¶ 193-96.

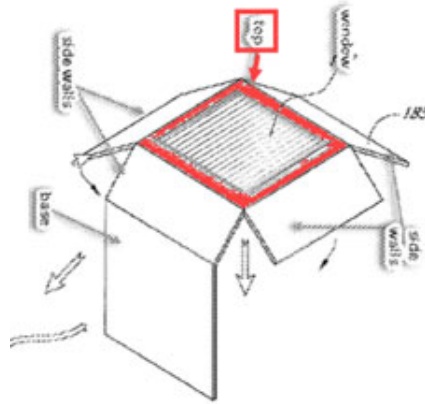
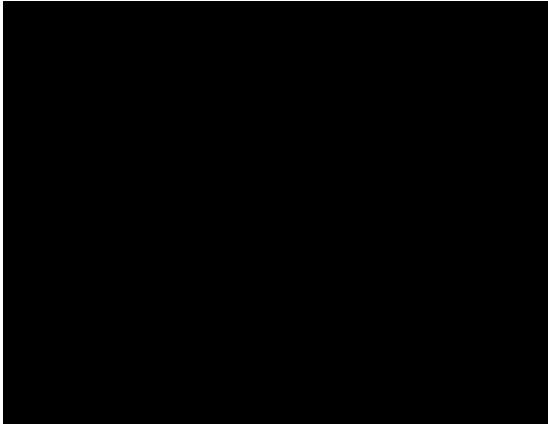


'911 File History, Nov. 9, 2020 Office Action, at 3 (red annotations added).

537. To overcome the rejection based on Schulz, the applicant amended what became Claim 1 of the '911 patent to further specify that the “top” of the shoebox structure includes “only one opening,” rather than a “window” (as was taught by Schulz). '911 File History, Feb. 9, 2021 Response to Office Action, at 2-3 (amendment depicted above). Considering that the applicant amended the claims to further specify that the uppermost structure (“top”) of the shoebox structure includes “only one opening” rather than a “window” to overcome prior art, [REDACTED]

538. Just as prior art Schulz has multiple pathways for light to reach the detector,

[REDACTED]



[REDACTED] '911 File History, Nov. 9, 2020 Office Action, at 3 (red annotations added).

539. *Lastly*, Dr. Madisetti's doctrine of equivalents opinion would vitiate the "wherein a top of the [shoebox structure / light block] includes only one opening through which light is configured to pass" limitation altogether. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Accordingly, Dr. Madisetti's doctrine of equivalents opinions for the "top of the shoebox structure / light block" limitation is flawed and cannot apply.

540. Even if the Accused Products include "only one opening" under the doctrine of equivalents, Dr. Madisetti has not provided a hypothetical claim that would cover this