

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MAGIC LEAP, INC

Petitioner,

v.

PERCEPT TECHNOLOGIES INC.

Patent Owner.

IPR2023-00495

Patent 8,696,113

PATENT OWNER'S RESPONSE

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I. INTRODUCTION AND SUMMARY OF ARGUMENTS

The Board should confirm the patentability of claims 1-3 and 12-14 of U.S. Patent No. 8,696,113 (the “’113 patent”) over Magic Leap, Inc.’s (“Magic Leap”) challenges.

Magic Leap’s challenges based on Osterhout, a reference cited and considered by the examiner during prosecution of the ’113 patent, fail because Osterhout does not teach or suggest a dynamic eye tracking mechanism, *i.e.*, a mechanism for dynamically tracking a wearer’s eye by certain optical parameter measurements, that is in communication with a lens of wearable optics. Nowhere in Osterhout’s disclosure is there any mention or suggestion that an eye tracking mechanism and a lens engage in an active exchange of information. The absence of such an exchange means Osterhout fails to meet the requirements of the challenged claims. In particular, the eye tracking mechanism of Osterhout is not in communication with a lens by way of the Osterhout eyepiece itself or a processor of the eyepiece, because correlating a viewing direction to a point on a lens, as described by Osterhout, is not engaging in an active exchange of information with the lens. The lens is not involved in any information gathering or providing. It is merely the eye tracking mechanism observing the direction of the viewer’s gaze and determining where that gaze lands on the lens. That

a processor may subsequently use that information to determine what the viewer is looking at on a display does not imply there is any *communication* being performed by or to (that is, *with*) the lens.

Magic Leap's challenges in view of Mann '526 and Vaissie are also flawed. In such a combination, an eye tracing mechanism would rely on infrared light produced by the mechanism itself for tracking eye movement. And, even if natural light passed through a lens and reflected off an eye is captured by the eye tracking mechanism, that eye tracking mechanism is not *in communication with* the lens, because the lens is not engaging in any information exchange with the eye tracking mechanism.

Moreover, the proposed combination of Mann '526 and Vaissie does not teach or suggest a dynamic eye tracking mechanism that utilizes optical parameter *measurements*, as required by the challenged claims. An eye-tracking function that determines the direction of a wearer's gaze using image processing as described by Mann '526-Vaissie would not rely on any such *measurements*.

These reasons why the Bord should confirm the patentability of the challenged claims are addressed in greater detail below.

II. BACKGROUND, THE '113 PATENT, AND CLAIM CONSTRUCTION

In its petition, Magic Leap presents two groups of challenges to the claims of the '113 patent; one based on the teachings of Osterhout (Ex. 1005) and the other based on the combined teachings of Mann '526 (Ex. 1006) and Vaissie (ex. 1007):

Ground		References	Claims
1	§ 103	Osterhout	1-3 and 12-14
2	§ 103	Mann '526 and Vaissie	1-3 and 12-14

See Pet. at 11.

A. The '113 Patent

The '113 patent describes “wearable optics” made up of a frame member and a lens, and which also include circuitry within the frame member for enhancing the use of the wearable optics. Ex. 1001 at Abst. Several such enhancements are described, including enhancements that allow the wearable optics to be used as “media focals,” or integrated with telecommunication devices and/or entertainment devices. *Id.* at 3:29 et seq., 4:54 et seq., 5:35 et seq. A feature of the wearable optics is the use of dynamic eye tracking, which allows for parameters of the wearable optics to be personalized to a wearer. *Id.* at 8:27 et seq. Additionally, features such as

perceptual optimization, augmented reality, and augmented reality navigation can be utilized based upon the dynamic eye tracking. *See id.* at 1:62–63, 1:66–67, 2:2–3, 2:6–7, 2:9–11, 2:14–15.

According to the specification, a dynamic eye tracking mechanism is in communication with the lens of the wearable optics. *Id.* at 1:57-59, 64-67; 2:4-6, 12-14. For example, where the wearable optics include lenses with materials that can be electrically controlled, chromatic, refractive, diffractive, transparency, and/or reflective properties of the wearable optics can be controlled using the dynamic eye tracking provided by this mechanism. *Id.* at 8:40-60. This feature is also recited in each of the challenged independent claims. *Id.* at 14:24-25 (claim 1), 15:11-12 (claim 12). Any or all of the iris, retina, cornea, pupil, ciliary, and lens of the eye can be used to enable the dynamic eye tracking mechanism. *See id.* at 9:43–46.

The specification further provides various examples of how the dynamic eye tracking mechanism communicates with the lenses of the wearable optics. In one such example, a zoom feature is provided in which a focal length of the lens can be controlled by the dynamic eye tracking mechanism. *See id.* at 9:7-13, 4:31-35. And as mentioned, in other examples the dynamic eye tracking mechanism controls chromatic, refractive,

diffractive, transparency, and/or reflective properties of the lenses. *Id.* at 8:53-60.

B. Claim Construction

In *inter partes* reviews such as this one, the Board applies the same claim construction standard used to construe a claim in a civil action under 35 U.S.C. § 282(b). *Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board*, 83 Fed. Reg. 51,340 (Oct. 11, 2018). Accordingly, the claims should be construed consistent with their plain and ordinary meaning as understood by a person of ordinary skill in the art. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-17 (Fed. Cir. 2005). “The ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Id.* at 1313.

In the co-pending district court litigation, *Percept Technologies Inc. v. Magic Leap, Inc.*, 1:22-cv-00025 (DDE), the Court entered an order construing the recited “dynamic eye tracking mechanism” and “lens,” Ex. 1021 at 1, however, the Court’s order did not address the entirety of the phrase, “a dynamic eye tracking mechanism in communication with the lens of the wearable optics.” As to that entirety of the phrase, the Board should

accord it its plain and ordinary meaning as understood by a person of ordinary skill in the art at the time of the invention of the '113 patent; to wit, a dynamic eye tracking mechanism and a lens that engage in an active exchange of information with one another.

Such a construction is appropriate because the phrase, as used in the '113 patent, is readily understandable and does not require further interpretation. *See Phillips*, 415 F.3d at 1314. Indeed, the patentee did not provide any meaning beyond the plain and ordinary meaning of this phrase in the specification of the '929 patent. Accordingly, there is no clear reason to depart from the plain and ordinary meaning of this term.¹ *Ancora Technologies Inc. v. Apple Inc.*, 744 F.3d 732, 734 (Fed. Cir. 2014) (“A claim term should be given its ordinary meaning in the pertinent context, unless the patentee has made clear its adoption of a different definition or otherwise disclaimed that meaning.”).

To determine the “plain and ordinary meaning” of the phrase “a dynamic eye tracking mechanism in communication with the lens of the wearable optics” as used in challenged claims 1 and 12, it is helpful to recognize that the limitation includes the prepositional phrase “in

¹ For its part, Magic Leap “does not believe any claim construction is necessary.” Pet. at 9.

communication with.” Prepositional phrases are essential components of sentences in the English language and typically consist of a preposition followed by one or more objects or modifiers. Here, “in” is the preposition, and “communication with” is the object of the preposition. Prepositional phrases help convey important information about the relationship between other items mentioned in a sentence. Here, the phrase “in communication with” is expressing a relationship between the dynamic eye tracking mechanism and the lens of the wearable optics. Ex. 1001 at 14:22-25, 15:10-13.

In particular, “in communication with,” as used in the context of the challenged claims, is indicating an active exchange of information between the dynamic eye tracking mechanism and the lens of the wearable optics. For example, the specification describes the dynamic eye tracking mechanism controlling chromatic, refractive, diffractive, transparency, and/or reflective properties of a lens. Ex. 1001 at 8:40-60. In cases such as this the lens and the dynamic eye tracking mechanism are exchanging information in order to effect a desired outcome. Such an exchange of information between the dynamic eye tracking mechanism and the lens of the wearable optics is thus the plain and ordinary meaning that the term would have to a person of

ordinary skill in the art in question at the time of the invention. *Phillips* 415 F.3d at 1313.

In the Institution Decision, the Board agreed that the phrase “in communication with” should be construed according to its “ordinary and customary meaning,” Paper 10 at 12, but criticized Patent Owner’s earlier briefing on this subject because it understood Patent Owner’s proposed construction as specifying a direction of communication. *Id.* at 11. At the same time, the Institution Decision failed to specify what the “ordinary and customary meaning” of the disputed limitation is. *See id.* at 12.

In light of the above, the Board should clarify its construction of the term “a dynamic eye tracking mechanism in communication with the lens of the wearable optics” as meaning the dynamic eye tracking mechanism and the lens of the wearable optics engage in an active exchange of information. Doing so would satisfy the requirement that the Board construe the claims as needed to resolve controversies present in this proceeding, *see Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017), while providing a construction consistent with the “plain and ordinary meaning” of the term.

In addition to the above, the Board should construe the term “measurements,” as used in the phrase “the dynamic eye tracking

mechanism utilizes optical parameter measurements,” Ex. 1001 at 14:25-26 (claim 1), 15:13-14 (claim 12), consistent with its plain and ordinary meaning as understood by a person of ordinary skill in the art at the time of the invention. *Phillips* 415 F.3d at 1313. A measurement is a size, length, or amount of something (*e.g.*, as established by the act of measuring). The term measurement is used at several places in the specification of the ’113 patent, *see, e.g.*, Ex. 1001 at 7:18-29; 8:51-53; 9:27-30; 10:55-61; 13:19-21, and in each instance, consistent with the ordinary and customary meaning of the term, seems to be indicating such a determination of size or length. Hence, this is the understanding that a person of ordinary skill in the art would have when reading the challenged claims and it is the construction that the Board should use for this term.

III. THE PETITION FAILS TO DEMONSTRATE THAT ANY CHALLENGED CLAIM IS UNPATENTABLE

The petition must be judged as it is written. The Board may not overlook flaws in the petition or reformulate its challenges to enhance their suitability. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (2018) (“[I]t’s the petitioner, not the Director, who gets to define the contours of the proceeding.”); *see also id.* (“[T]he petitioner is master of its complaint . . .”); *see also id.* at 1353 (forbidding the Board from “curat[ing]” the petition).

Furthermore, because all of the challenges in the petition allege obviousness of the claims, the analyses set forth in the petition must include “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). The challenger must supply the factual basis for the challenge and “may not resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in its factual basis.” *In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967). Additionally, in cases such as the present, where the obviousness challenges involve a modification or combination of teachings, the Petitioner must also establish that one skilled in the art would have had a reasonable expectation of success to make the modification or combination. *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367-68 (Fed. Cir. 2016) The modification or combination must not “require a substantial reconstruction and redesign of the elements” in a reference or “a change in the basic principles under which [a reference] was designed to operate.” *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959). Nor can the modification or combination render a reference unsatisfactory or “inoperable for its intended purpose.” *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

Last but not least, the Supreme Court has emphasized that obviousness cannot be established by hindsight combination to produce a claimed invention:

A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. *See Graham [v. John Deere Co.]*, 383 U.S. [1,] 36, 86 S. Ct. 684, 15 L. Ed. 2d 545 [(1966)] (warning against a “temptation to read into the prior art the teachings of the invention in issue” and instructing courts to “guard against slipping into use of hindsight” (quoting *Monroe Auto Equip. Co. v. Heckethorn Mfg. & Supply Co.*, 332 F.2d 406, 412 (6th Cir. 1964))).

KSR Int’l, 550 U.S. at 421.

A. The Challenged Claims are Not Unpatentable in View of Osterhout

Magic Leap’s first group of challenges are based on the teachings of Osterhout. Pet at 11. This is the same Osterhout reference that was cited and considered on the merits during prosecution of the ’113 patent. Ex. 1002 at 78-80, 91-100. During prosecution, the Examiner determined that Osterhout did not teach or suggest a dynamic eye tracking mechanism that utilizes optical parameter measurements which include ciliary, pupil, corneal, eye

lens, iris, eye lid, or retina measurements in combination with other elements of the claims. That is, a dynamic eye tracking mechanism that considered the actual functioning of the eye in the eye tracking. *Id.* at 27 (Notice of Allowability referencing the argument presented at Ex. 1002 at 78-79).

Magic Leap alleges, however, that Osterhout's teachings concerning the use of corneal reflections meets the requirement of a dynamic eye tracking mechanism that utilizes optical parameter measurements. Pet. at 18, 21-22. But any such reflections are not optical parameter "measurements" and Magic Leap fails to explain how or why they should be regarded as such. The challenged claims are clear that optical parameter measurements include ciliary, pupil, corneal, eye lens, iris, eye lid, or retina measurements. A measurement is a determination of size, length, or at least an amount of something. Using a reflection to determine the direction of a user's gaze as taught by Osterhout, Ex. 1005 at [0301], is not such a measurement and certainly not a ciliary, pupil, corneal, eye lens, iris, eye lid, or retina measurement.

Nor are images of "features from inside the eye," Pet. at 22, ciliary, pupil, corneal, eye lens, iris, eye lid, or retina measurements. The images may depict elements of the eye such as retinal blood vessels, but there is no

teaching that any *measurements*, *i.e.*, determinations of size or length, of anything depicted in these images is made. *See* Ex. 1005 at [0301].

Osterhout does contemplate using measurements of electrical potentials by way of sensors placed on the skin near the eye, *id.*, but such measurements are not ciliary, pupil, corneal, eye lens, iris, eye lid, or retina measurements and even Osterhout does not characterize them as such. Instead, the measurements appear to be of electric fields near the eye, and the fact that skin sensors placed near, but not on, the eye must be employed when measuring same suggests that measuring these fields is not the same as measuring a cilia, pupil, cornea, eye lens, iris, eye lid, or retina. Certainly, the testimony of Dr. LaViola which merely makes the same conclusory allegations as in the petition, Ex. 1003 at 66, is not sufficient to explain why these measurements of electrical potentials should be regarded as ciliary, pupil, corneal, eye lens, iris, eye lid, or retina measurements. 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); *Upjohn Co. v. Mova Pharm. Corp.*, 225 F.3d 1306, 1311 (Fed. Cir. 2000) (“Lack of factual support for expert opinion to factual determinations, however, may render the testimony of little probative value in a validity

determination.”) (quoting *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985)).

Furthermore, insofar as the petition alleges that tracking the center of a pupil of an eye constitutes a pupil measurement, Pet. at 22, that allegation is false. Tracking the location of a pupil does not equate with actually measuring the pupil inasmuch as there is no determination of size taking place. All that is being determined is a location or perhaps a direction in which the pupil is oriented. Notably, there is no teaching of any angular determination taking place.

Finally, Magic Leap’s alleges that the use of a camera to determine eye blinking constitutes measuring the position of an eyelid. Pet. at 23. This is not so. Eye blinking could, for example, be determined by the camera using reflected light from a cornea as described elsewhere in Osterhout. Ex. 1005 at [0301]. Or, image analysis could be employed to distinguish an open eye from a closed eye. In any event, there is no teaching in Osterhout that it is any *measurement* of eye lid position that is being used to distinguish blinking or not blinking.

In short, the challenged claims require more than mere tracking of eye movement. The challenged claims require that the dynamic eye tracking mechanism utilize optical parameter *measurements* of the kind specified.

The petition fails to show that any such measurements, *e.g.*, determinations of size or length, are taught or suggested by Osterhout.

And, there are further failings in the petition. For example, Magic Leap argues the eye tracking facility of Osterhout is “in communication with” the lens, “at least because the dynamic eye tracking mechanism detects an eye gaze that is directed toward a specific part of the lens (*e.g.*, the corner), or through a certain portion of the lens.” Pet. at 19.

Alternatively, Osterhout is alleged to teach the dynamic eye tracking mechanism in “optical communication” with the lens “because the lens is translucent, the eye receives light rays that are transmitted via the lens[, and t]hose light rays are detected by the dynamic eye tracking mechanism—for example, by a ‘camera on the eyepiece that views back to the wearer’s eye.’” *Id.* (citations omitted). And, Magic Leap further contends, “the dynamic eye tracking mechanism is [] in communication with the lens at least by correlating the viewing direction [of the user’s eye] to a point on the lens [at which a display is projected].” *Id.* at 19-20.

None of these arguments support a finding that Osterhout teaches or suggests a dynamic eye tracking mechanism *in communication with* a lens, as recited in independent claims 1 and 12. As discussed above, this element of the challenged claims is specifying that the lens of the wearable optics

device and the dynamic eye tracking mechanism engage in an active exchange of information. Magic Leap’s argument that the eye tracking facility of Osterhout is “in communication with” the lens, “at least because the dynamic eye tracking mechanism detects an eye gaze that is directed toward a specific part of the lens (e.g., the corner), or through a certain portion of the lens,” Pet. at 19, fails to meet this requirement of the claims. According to Osterhout, a camera on the eyepiece that looks back towards the wearer’s eye can interpret various eye movements as commands for a controlled device. Ex. 1005 at [0304]. Magic Leap’s first argument focuses on the portion of this disclosure concerning the camera detecting the wearer gazing towards a fixed object, such as the corner of the lens or gazing at an object through the lens. Pet. at 19 (citing Ex. 1005 at [0304]). Simply observing where a wearer is looking does not demonstrate that the object doing the observing (e.g., a camera) is in communication with something the wearer is looking through (e.g., a lens). Indeed, no communication (that is, no exchange of information) whatsoever between the camera (or, more broadly, the eye tracking facility) and the lens is required (or identified in Osterhout) for the camera to perform this function. That the light received by the camera may travel from the wearer’s eye through the lens does not demonstrate that the camera is *in communication with* the lens, because the

lens is not actively exchanging any information with the camera. Instead, the lens merely acts passively as the light passes through it. The lens adds nothing to the light and imparts no information to the camera. Nor does the camera impart anything to the lens.

That the wearer's gaze might be directed to a part of the lens is even a less tenuous basis for concluding that the camera of Osterhout is *in communication with* the lens because there remains no information exchange, *i.e.*, no communication, between those items. When the camera (and any related processor) determines where the wearer is looking, neither communicates with the lens, or the portion thereof, that the wearer happens to be looking towards. No information exchange between these components, as required by the claims, takes place.

To the extent Magic Leap relies on the testimony of Dr. LaViola for supporting its argument, Pet. at 19 (citing Ex. 1003 at ¶ 60), that testimony is entirely conclusory and virtually a verbatim duplication of the argument made in the petition. Ex. 1003 at ¶ 60. It offers no assistance whatsoever to the Board in understanding how or why the opinion expressed by Dr. LaViola was reached. As such it is entitled to no weight. *See* 37 C.F.R. § 42.65(a); *Upjohn Co.*, 225 F.3d at 1311.

In the Institution Decision, the Board noted that because it read Patent Owner's proposed claim construction as including a directional communication, it did not agree with Patent Owner's arguments concerning the petition's failure to demonstrate that Osterhout teaches a dynamic eye tracking mechanism in communication with a lens. Paper 10 at 16. Above, Patent Owner has clarified that it is proposing a construction that does not include any directionality of communication, but does require that the dynamic eye tracking mechanism and the lens engage in an active exchange of information. It is because there is no such active exchange of information in the system proposed by Osterhout that it fails to meet the requirements of the challenged claims.

Magic Leap's next contention that in Osterhout the dynamic eye tracking mechanism might be in *optical communication* with the lens because the lens is translucent, the eye receives light rays that are transmitted via the lens, and those light rays are detected by the dynamic eye tracking mechanism, Pet. at 19, is also deficient. Even Magic Leap is apparently unconvinced by its own argument inasmuch as it says only that the dynamic eye tracking mechanism *might be* in optical communication with the lens. *Id.* In any event, Magic Leap does not explain why by receiving light rays passing through a lens the dynamic eye tracking

mechanism is *in communication with* the lens, as required by claims 1 and 12. Frankly, this is because there is no such *communication, i.e.*, information exchange.

Magic Leap bases its argument on the disclosure provided by Osterhout at [0304] and on the conclusory statements of Dr. LaViola. *Id.* As before, Dr. LaViola's testimony is entirely duplicative of the argument made in the petition and offers no supporting factual basis for its conclusion. *See* Ex. 1003 at ¶ 61. Hence, it is deserving of little or no weight. And, as before, Osterhout itself offers no basis for concluding there is any communication, optical or otherwise, between the dynamic eye tracking facility (*e.g.*, the camera) and the lens. That light rays received by the dynamic eye tracking facility may pass through the lens either before reflecting from the wearer's eye and/or thereafter does not mean the lens is engaged in an active information exchange with the dynamic eye tracking facility, as required by the claims. In fact, there is no such communication taking place between the dynamic eye tracking facility and the lens whatsoever, and it is merely the dynamic eye tracking facility receiving light rays from wherever they happen to originate. The light rays are not acted upon by the lens so as to *communicate* anything. There is no exchange of information taking place.

Magic Leap's next augment is similarly unavailing. According to Magic Leap, because Osterhout's dynamic eye tracking facility can correlate the wearer's viewing direction to a point on a display that is projected on the lens, the dynamic eye tracking mechanism must be in communication with the lens "at least by correlating the viewing direction to a point on the lens." Pet. at 20. Of course, neither Magic Leap nor Dr. LaViola (who merely repeats this contention verbatim, Ex. 1003 at ¶ 62) provide any explanation of why a correlation performed by the dynamic eye tracking facility alone means that dynamic eye tracking facility must be in communication with the lens. Certainly, Osterhout does not describe any such communication and it is apparent that there is no information exchange between the lens and the dynamic eye tracking facility as part of this correlation. Instead, Osterhout states only that the direction of viewer's gaze is monitored. Ex. 1005 at [0304]. Nothing is said about the need for the dynamic eye tracking facility to be in communication with the lens for the command interpretation to be made and nor has Magic Leap or its declarant explained why this must be so.

Regarding the above, the Institution Decision remarked,

[W]e understand Petitioner's position to be that the eyepiece interprets commands based on the point of the display to which the eye tracking mechanism correlates the viewing direction because the display is projected on

the lens by the eyepiece. In other words, we understand Petitioner's position to be that the dynamic tracking mechanism is in communication with the lens by way of the eyepiece itself (e.g., a processor or controller of the eyepiece) which sends communications (i.e., the display projection) to the lens and receives communications (i.e., the viewing direction) from the dynamic eye tracking device and interprets commands based thereon.

Paper 10 at 16-17. To the extent this formulation of Petitioner's argument is really the Board's argument, it is an improper curating of the petition. *SAS Inst. Inc.*, 138 S. Ct. at 1353. And, even if the petition can be read as including such an argument, it is wrong.

The petition states,

Osterhout discloses that the dynamic eye tracking mechanism can “correlate the viewing direction of the eye to a point on the display,” and that the eyepiece can interpret commands based on that point on the display. Because the display is projected on the lens, the dynamic eye tracking mechanism is thus further in communication with the lens at least by correlating the viewing direction to a point on the lens.

Pet. at 20 (citations omitted). Notice, there is no explicit mention of the dynamic tracking mechanism being in communication with the lens by way

of the eyepiece itself or a processor of the eyepiece, as the Institution Decision supposes. Instead, the petition alleges a communication exists “by correlating the viewing direction to a point on the lens.” Correlating a viewing direction to a point on a lens is not engaging in an active exchange of information with the lens. The lens is not involved in any information gathering or providing. It is merely the eye tracking mechanism on its own observing the direction of the viewer’s gaze and determining where that gaze lands on the lens.

Further, insofar as “the eyepiece may be able to interpret commands through a combination of where the wearer is looking and an action by the wearer,” Ex. 1005 at [0304], again the lens is not involved in any information exchange. Instead, it is the eyepiece (or a processor of the eyepiece) determining where the user’s eye is looking (by virtue of the eye tracking mechanism) and comparing that point with the information being displayed; information which the processor itself caused to be displayed. *Id.* at [0164]. The lens is not participating in any exchange of information. All that transpires is the processor associating two pieces of information; one of its own making or direction, and one from the eye tracking mechanism. The lens neither provides nor receives any information in this process and therefore does not exchange any information with the eye tracking

mechanism, as required by the challenged claims.

Magic Leap’s final argument as to why the dynamic eye tracking facility of Osterhout is in communication with the lens concerns “a special contact lens [that] may be provided to the user with an embedded optical component, such as a mirror, magnetic field sensor, and the like, for measuring motion of the eye.” Ex. 1005 at [0301]; Pet. at 17, 20. Osterhout does not say much about the “special contact lens,” nor is it depicted in any of the figures of the reference. All that the user is advised is that motions of the eye might be monitored with components (such as the aforementioned mirror or magnetic field sensor) mounted in the contact lens. Ex. 1005 at [0301].

Magic Leap’s petition seemingly alleges that Osterhout’s “special contact lens” could be considered the recited “lens” of a “wearable optics device” recited in claims 1 and 12, Pet. at 17, 39, but this attempt fails. First, claim 12 requires that the “lens includes a plurality of layers.” Ex. 1001 at 15:20. Nothing in Osterhout describes the “special contact lens” as including a plurality of layers, nor are any such layers suggested. Ex. 1005 at [0301]. Indeed, Magic Leap resorts to the “understanding” of a person of ordinary skill in the art to try and conjure some layers, but this is supported only by the conclusory testimony of Dr. LaViola, Pet. at 42 (citing Ex. 1003 at ¶

111), which offers no factual basis for its deduction. Instead, Dr. LaViola merely repeats, word for word, the allegation of the petition. Ex. 1003 at ¶ 111. Not only is such testimony entitled to little or no weight, PTAB Consolidated Trial Practice Guide at 35 (Nov. 2019) (“Consol. TPG”), it is not a substitute for an actual disclosure in a prior art reference. *Id.* at 36; *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, slip op. at 15-17 (PTAB Aug. 24, 2022) (Precedential). In fact, Osterhout says nothing about how a special contact lens that includes embedded optical components may be constructed, and it is only speculation on the part of Dr. LaViola and Magic Leap that it would have the necessary “plurality of layers.” Dr. LaViola offers no basis for concluding that must be the case; for example, his testimony says nothing about the construction of contact lenses in general or even contact lenses with embedded components, and so there is no basis for accepting his unsupported statement that the special contact lens mentioned in only two sentences of Osterhout must include them. In short, there is nothing that suggests the “special contact lens” of Osterhout can or should be considered the “lens” recited in claim 12.

Second, as noted above, the same “lens” recited in claim 12 is recited in claim 1. Ex. 1001 at 14:23. Because the same term is used identically in each of these claims, it should be construed consistently across both of these

claims. *Digital Biometrics, Inc. v. Identix, Inc.*, 149 F.3d 1335, 1345 (Fed. Cir. 1998). As the “special contact lens” of Osterhout” cannot be the “lens” of claim 12, it cannot be the “lens” of claim 1 either.

Because the “special contact lens” of Osterhout is not the “lens” recited in challenged claims 1 and 12, Petitioner has failed to demonstrate that Osterhout teaches or suggests a dynamic eye tracking facility in communication with the lens, as alleged. The basis for Magic Leap’s assertion is its mapping of the recited “lens” of the claims to the “special contact lens.” Pet. at 20 (“The eye tracking mechanism is in communication with the lens, at least because the eye tracking mechanism is in communication with the embedded optical component of the contact lens to receive the measured motion of the eye and thus track the motion.”), 39. As this mapping fails, so too does Magic Leap’s contention that Osterhout discloses the “in communication with” requirement of the claims.

Thus, Petitioner has failed to demonstrate that Osterhout teaches or suggests the subject matter required by independent claims 1 and 12, and therefore fails to make out a *prima facie* case of obviousness. *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003); *see also* 37 C.F.R. § 42.108(c); *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (“In an [*inter partes* review], the petitioner has the burden

from the onset to show with particularity why the patent it challenges is unpatentable.”) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)); *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (the burden of persuasion never shifts to the Patent Owner); *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (a petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements”).

Claims 2-3 depend from claim 1 and claims 13-14 depend from claim 12. Each respective dependent claim is not unpatentable in view of Osterhout for at least the same reasons as its respective independent claim. *Hartness Int’l. Inc. v. Simplimatic Engineering Co.*, 819 F.2d 1100 (Fed. Cir. 1987) (a claim that depends from a nonobvious independent claim is nonobvious because it contains all of the limitations of that independent claim plus a further limitation).

B. The Challenged Claims are Not Unpatentable in View of Mann ’526 and Vaissie

Petitioner challenges claims 1-3 and 12-14 as being obvious in view of Mann ’526 and Vaissie. Pet. at 11, 44 et seq.

Mann '526 describes “a wearable camera with a viewfinder,” Ex. 1006 at Abst., which in one example takes the form of a pair of eyeglasses. *Id.* at 11:30–38, Fig. 1. Provided behind the lens(es) of the eyeglasses is an optical system that provides a magnified view of an electronic display which acts as a viewfinder screen. *Id.* at 12:38–48. An eye tracker assembly that includes a camera and infrared light sources illuminates and observes the eyeball by way of rays of infrared light that partially reflect off a beamsplitter. *Id.* at 24:67 - 25:7. The eye tracker reports the direction of the wearer’s gaze and conveys this information to an eye tracker processor which converts it into X and Y coordinates that correspond to the viewfinder screen coordinates to indicate where on the viewfinder screen the wearer is looking. *See id.* at 25:7–13.

Vaissie describes an eye-tracking system for a head mounted device. *See* Ex. 1007 at Abst., 1:56–58. To determine the direction of a wearer’s gaze, LEDs emit light which is reflected onto the cornea and then to an imaging system to be processed. *See id.* at 3:16–31. An image of the eye is processed through an image processing computer program to provide a location of the pupil and of the reflections from the LEDs. *See id.* at 3:39–46, 3:59–4:3.

As to the requirement that a dynamic eye tracking mechanism be in communication with a lens, as recited in the challenged claims, Magic Leap alleges first that an eye tracking system as described in Mann '526 “is *in communication with the lens* at least because the eye tracking mechanism is in optical communication with the lens, *e.g.*, by the eye tracking mechanism receiving light rays from the lens.” Pet. at 53 (emphasis in original). The Institution Decision characterized this argument as alleging, “that the camera of the eye tracking mechanism captures an image of the eye by capturing light rays transmitted by the lens and subsequently reflected by the eye.” Paper 10 at 27. Further,

[W]e understand Petitioner’s contentions to be that light transmitted by the lens as well as light generated by the eye tracking mechanism (i.e., infrared light) are reflected by the eye and can be captured in an image of the eye by the eye tracking mechanism.

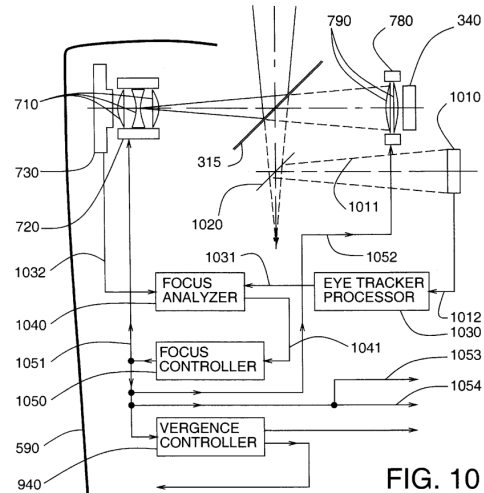
Id. Improperly placing the burden on Patent Owner to prove patentability, the Institution Decision remarked, “Patent Owner does not direct us to where Mann '526 discloses an embodiment in which natural light cannot be not transmitted through the lens and, therefore, cannot be reflected by the wearer’s eye and captured by the eye tracking device.” *Id.*

As to these latter remarks, it is not Patent Owner's burden to prove patentability, for example, by showing the absence of a particular embodiment from a disclosure; rather it is Magic Leap's burden to prove the claims are unpatentable by virtue of what is stated in a prior art disclosure. *Dynamic Drinkware*, 800 F.3d at 1378. And, as explained above, the "in communication with" limitation in claims 1 and 12 requires that the lens of the wearable optics device be engaged in an exchange of information with the dynamic eye tracking mechanism. Magic Leap's argument that the eye tracking mechanism of Mann '526 is "in optical communication with" the lens fails to meet this requirement. First, Magic Leap does not explain why any passing of light, natural or otherwise, through the lens would mean the dynamic eye tracking mechanism is *in communication with* the lens, as required by claims 1 and 12. Such passing of light would not be and is not an active exchange of information as required by the challenged claims for no information is imparted between the eye tracking mechanism and the lens as a result of same.

Second, it is not the case that Mann '526 relies on any natural light passing through the lens to track eye motion. According to Mann '526,

FIG. 10 depicts the left eye portion of an embodiment of the wearable camera system where the camera focus and vergence are driven by the output of an eyetracker. Eye tracker assembly 1010

(comprising camera and infrared light sources) *illuminates and observes the eyeball by way of rays of light 1011 that partially reflect off beamsplitter 1020*. Beamsplitter 1020 also allows the wearer to



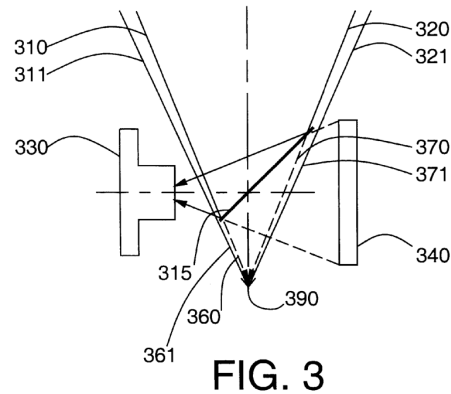
see straight through to mirror 315 and thus see virtual light from viewfinder 340. The eyetracker 1010 reports the direction of eye gaze and conveys this information as a signal 1012 to eye tracker processor 1030 which converts this direction into “X” and “Y” coordinates that correspond to the screen coordinates of viewfinder Screen 340.

Ex. 1006 at 24:66 – 25:11 (emphasis added). Thus, Magic Leap is wrong when it alleges that, “the camera of the eye tracking mechanism 1010 captures an image of the eye by capturing light rays *transmitted by the lens* and reflected in the eye.” Pet. at 53 (emphasis added). Instead, Mann ’526 explains that the eye tracker assembly 1010 itself “illuminates and observes the eyeball by way of rays of light 1011.” Ex. 1006 at 25:1-5. The light rays

1011 are produced by infrared light sources of the eye tracker assembly, partially reflect off the beamsplitter 1020, reflect off the wearer's eye, and then return to the eye tracker assembly 1010. *Id.* There is no teaching of the eye tracking mechanism receiving light rays from the lens to track eye motion, as alleged by Magic Leap. And, insofar as Magic Leap relies on the testimony of Dr. LaViola in support of its flawed theory, it should not surprise that Dr. LaViola's testimony in this regard is simply a repetition of the allegation set forth in the petition. Ex. 1003 at ¶ 138. As such, the Board need not accord it any weight. Consol. TPG at 35; *and see Homeland Housewares, LLC v. Whirlpool Corp.*, 865 F.3d 1372, 1378 (Fed. Cir. 2017) (where, as here, expert testimony is inconsistent with the record, or based on an incorrect understanding of the claims, that testimony must be disregarded); *Wyers v. Master Lock Co.*, 616 F.3d 1231 (Fed. Cir. 2010); *and see Intercontinental Great Brands LLC v. Kellogg North America Company*, 869 F.3d 1336, 1348 (Fed. Cir. 2017) ("[E]xpert testimony is not required when the references and the invention are easily understandable.").

Magic Leap thus ignores the actual teachings of Mann '526 when it argues that the camera of the eye tracking mechanism captures light rays, such as light rays 311 and 321, that are "transmitted by the lens and reflected in the eye." Pet. at 53. To understand light rays 311 and 321 one must refer

to Mann '526's Figure 3. That illustration, reproduced below, shows an arrangement in which rays of light spanning a visual angle from ray 310 to 320 enter the apparatus and are intercepted by a two-sided mirror 315. Ex. 1006 at 17:59-63. These rays reflect off the mirror and enter camera 330. *Id.* at 17:63-64. The video output of the camera is displayed on screen 340, and a reflection of the screen is then seen in the other side of mirror 315 by the user. *Id.* at 18: 7-20. At the same time, light rays such as 311 and 321 that are not incident on the mirror 315 enter directly into the wearer's eyes, providing the wearer with a view in which the screen image overlaps the wearer's view of the real world. *Id.* at 18:21-26.



The eye tracking mechanism 1010 does not, however, capture light rays 311 and 312. Instead, the eye tracking mechanism relies on the infrared light sources to track motion of the eye. *Id.* at 25:1-4. Mann '526 specifically notes that the eye tracking mechanism “illuminates and observes the eyeball by way of rays of light 1011,” not by way of light rays 311 and 321. Light rays 1011 emanate from the eye tracking mechanism 1010, not from the lens. *See id.* at Fig. 10, reproduced below.

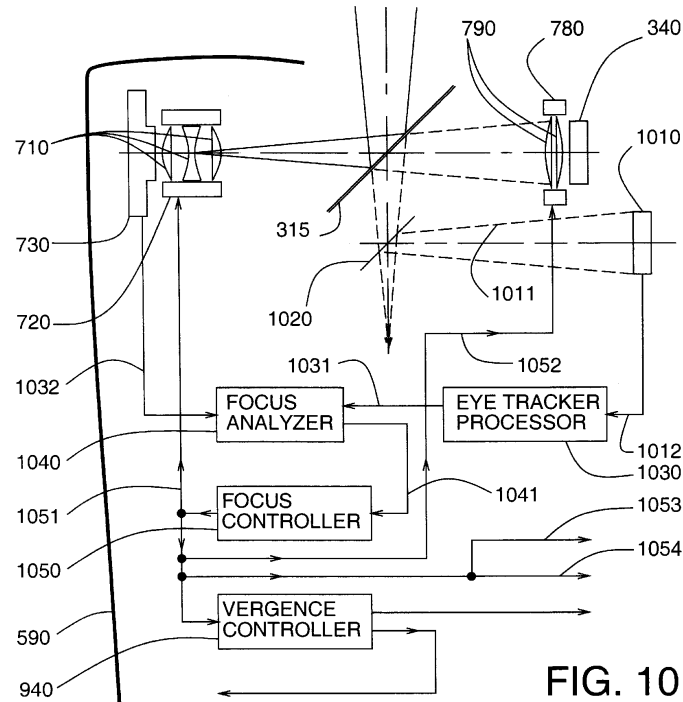


FIG. 10

Next, perhaps recognizing the flaw with its first argument, the petition proposes that a person of ordinary skill in the art would have found it obvious to modify the embodiment shown in Figure 10 of Mann '526 by replacing mirror 315 with a beamsplitter and that with such a modification the eye tracking mechanism of Mann '526 would be in optical communication with the lens because the beamsplitter would transmit light rays from the lens to the eye tracking mechanism. *Id.* at 54-55; *and see id.* at 71 (treating claim 12 similar to claim 1 with respect to the “in communication with” limitation). But, as with the first, this argument also fails.

Mann '526 actually illustrates an arrangement in which mirror 315 is replaced by a beamsplitter 415 in Figure 4, reproduced here. In this arrangement, a portion of the light rays are deflected by the beamsplitter 415

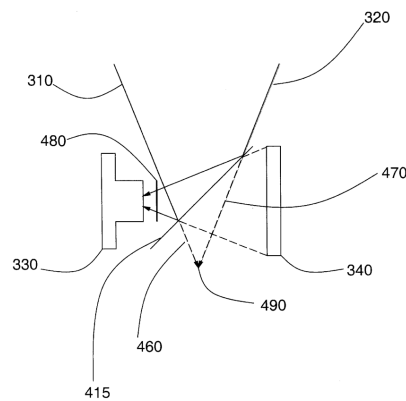


FIG. 4

into camera 330, the output of the camera is displayed on screen 340, and the reflection of screen 340 is visible to the eye of the wearer by way of beamsplitter 415. Ex. 1006 at 18:63 – 19:7. Importing such an arrangement into Mann '526's Figure 10 embodiment does nothing to change the fact that the eye tracking mechanism 1010 utilizes infrared light which it produces, and not light passed through the lens, in order to track eye motion. And, even if there were some natural light that passed through the lens and into the eye tracking mechanism this would not show the eye tracking mechanism being in communication with the lens because there still would be no exchange of information between these components. The lens imparts nothing to the light passing through it and so exchanges no information with the eye tracking mechanism even if that light (or a portion of it) reaches the

eye tracking mechanism. In short, replacing mirror 315 with a beamsplitter would not result in the eye tracking mechanism being in communication with the lens whether or not any light passing through the lens reaches the eye tracking mechanism.

Thus, Magic Leap's argument that the combination of Mann '526 and Vaissie teaches or suggests the subject matter required by independent claims 1 and 12 fails. In Mann '526, and in the combination of Mann '526 and Vaissie, the eye tracing mechanism relies on infrared light produced by the mechanism itself, and not on light transmitted through the lens, for tracking eye movement. Furthermore, even if natural light is passed through the lens and reflects off the eye to be captured by the eye tracking mechanism, the eye tracking mechanism is not *in communication with* the lens, because the lens is not engaging in any information exchange with the eye tracking mechanism. The lens does not impart any information to such natural light to pass on to the eye tracking mechanism. Accordingly, the petition has failed to satisfy its obligation to "specify where each element of the claim is found in the prior art," 37 C.F.R. § 42.104(b)(4), and fails to make out a *prima facie* case of obviousness. *CFMT, Inc.*, 349 F.3d at 1342.

Additionally, the proposed combination of Mann '526 and Vaissie does not teach or suggest a dynamic eye tracking mechanism that utilizes

optical parameter *measurements*, as required by claims 1 and 12. Magic Leap contends that the combination of these references would include Vaissie's teachings of an eye-tracking function that determines the location of a pupil, and therefore identifies the direction of a wearer's gaze using a camera to detect reflected light. *See* Pet. at 56-58. According to Vaissie, however, that eye tracking function does not rely on any *measurements*, that is determinations of size or length, but instead on using image processing. Ex. 1007 at 3:59 – 4:3. In particular, images are taken of a wearer's eye. These images show both the pupil and the reflections of LED lights. By comparing locations of these reflections and of the center of the pupil in different images of the eye, the sight direction is determined. *Id.* Nowhere does Vaissie mention any *measurements* being involved in these determinations. Hence, for this additional reason, the combination of Mann '526 and Vaissie proposed by Magic Leap fails to meet the requirements of the challenged claims.

Claims 2-3 depend from claim 1 and claims 13-14 depend from claim 12. Each respective dependent claim is not unpatentable in view of Mann '526 and Vaissie for at least the same reasons as its respective independent claim. *Hartness Int'l.*, 819 F.2d 1100.

IV. CONCLUSION

For at least the foregoing reasons, the Board should confirm the patentability of claims 1-3 and 12-14.

Dated: October 25, 2023

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WORD-COUNT CERTIFICATE

I certify that the foregoing document complies with the type-volume limitation of 37 C.F.R. § 42.24(a) and (b) and contains 7,868 words (including words in drawings created by the Patent Owner or as annotations added by the Patent Owner to images reproduced in this document) based on the word count indicated by Microsoft® Word for Mac v. 16.49, excluding those portions exempted by the rule.

/Tarek N. Fahmi/

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing:

PATENT OWNER'S RESPONSE

and its accompanying exhibits were served on October 25, 2023, by filing this document through the PTAB P-TACT System as well as by delivering a copy via email directed to the attorneys of record for the Petitioner at the following addresses:

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