

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

META PLATFORMS, INC.,
Petitioner,

v.

MULLEN INDUSTRIES LLC,
Patent Owner.

IPR2025-00739
Patent 10,179,277 B2

Before KEN B. BARRETT, JEFFREY S. SMITH, and
MIRIAM L. QUINN, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Petitioner filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1, 8, 13, and 20 of U.S. Patent No. 10,179,277 B2 (Ex. 1001, “the ’277 patent”) pursuant to 35 U.S.C. § 311(a). Patent Owner filed a Preliminary Response (Paper 10, “Prelim. Resp.”) pursuant to 35 U.S.C. § 313. In addition, pursuant to our authorization in an email sent August 6, 2025, Petitioner filed a Preliminary Reply (Paper 11) and Patent Owner filed a Preliminary Sur-Reply (Paper 12) directed to Patent Owner’s proposed construction of the claim term “physical playfield.”

Institution of an *inter partes* review may not be authorized by statute “unless . . . the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Upon consideration of the record before us, we determine Petitioner has demonstrated a reasonable likelihood that it would prevail in establishing the unpatentability of at least one of claims 1, 8, 13, and 20 of the ’277 patent. Accordingly, we institute the requested *inter partes* review.

A. *Real Parties-in-Interest*

Petitioner identifies itself as the real party-in-interest. Pet. 1. Patent Owner identifies itself as the real party-in-interest. Paper 3, 1.

B. *Related Matters*

The parties state that the ’277 patent is currently asserted in *Mullen Industries LLC v. Meta Platforms, Inc.*, No. 1:24-cv-00354 DAE (W.D. Tex.). Pet. 1; Paper 3, 1. The Petition identifies twelve *inter partes* review proceedings challenging related patents. Pet. 1.

C. The '277 Patent

The '277 patent “relates to location-based game systems.” Ex. 1001, 1:18. An augmented reality (“AR”) system overlays video game indicia onto a user’s physical environment. *Id.* at code (57). A landscape detector obtains information about the user’s landscape and location, in order to provide overlaying information to an AR head-mounted display. *Id.*

D. Illustrative Claim

Challenged claim 1 of the '277 patent is reproduced below along with Petitioner’s labels for the limitations.

1. [1pre] A non-transitory computer-readable medium with stored program logic thereon, when executed by a processor, cause the processor to perform the method comprising:
 - [1a] providing 3-D video game indicia to a head-mounted display of a head-mounted device with respect to a physical playfield based on video game logic associated with a video game, wherein said head-mounted device includes a processor;
 - [1b] utilizing a detector to determine landscape characteristics of said physical playfield, wherein said video game logic utilizes said landscape characteristics in providing said video game; and
 - [1c] utilizing a locating device to determine the physical location of said locating device on said physical playfield, wherein said video game logic utilizes the physical location of said locating device in providing said video game.

E. Asserted Ground

Petitioner asserts that claims 1, 8, 13, and 20 of the '277 patent are unpatentable on the following ground (Pet. 3):

Claim(s) Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1, 8, 13, 20	103(a)	Jaszlics, ² Rallison ³

II. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner contends that

A person of ordinary skill would have possessed a bachelor's degree in electrical engineering, computer science, or similar field, with two years combined experience in designing and/or developing interactive location-based computer systems/software, such as video games or other simulations incorporating location information (such as GPS information associated with a user's physical location), and in designing and/or developing computer systems/software involving graphical virtual and/or augmented reality. A person could also have qualified as a person of ordinary skill in the art with some combination of (1) more formal education (such as a master's degree) and less technical experience, or (2) less formal education and more technical or professional experience. (EX1002, ¶¶21-25.)

Pet. 4. Patent Owner at this stage does not challenge Petitioner's definition of the level of ordinary skill. *See generally* Prelim. Resp. As Petitioner's definition of a person of ordinary skill appears commensurate with the

¹ The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112–29, 125 Stat. 284 (Sept. 16, 2011), includes revisions to Section 103 that became effective on March 16, 2013. Because the challenged claims issued from an application claiming the benefit of the filing date of an application filed before March 16, 2013, we apply pre-AIA law.

² US Patent No. 6,166,744 issued Dec. 20, 2000 (Ex. 1003).

³ US Patent No. 6,369,952 issued Apr. 9, 2002 (Ex. 1004).

subject matter before us, we apply Petitioner’s definition for purposes of this Decision.

B. Claim Construction

We interpret the challenged claims

using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

37 C.F.R. § 42.100(b) (2022). We construe expressly only those claim terms that require analysis to determine whether to institute *inter partes* review.

See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc., 200 F.3d 795, 803 (Fed. Cir. 1999) (holding that “only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”).

Petitioner submits that “express constructions are not required.”

Pet. 8. However, Patent Owner proposes construing the claim term “a physical playfield” recited in independent claim 1 as “a bounded physical play space.” Prelim. Resp. 16; Paper 12, 1. Patent Owner contends that the claims recite determining a physical location “on the physical playfield,” which implies that there is some space in the world that is off the physical playfield. Prelim. Resp. 18; Paper 12, 1. Patent Owner contends that although the Specification includes the phrase “a physical playfield (e.g., the physical world, a physical environment, or a defined physical playfield)” (Ex. 1001, 1:56–58), the Specification explains that this phrase means that each physical playfield is bounded, where some playfields are bounded as marked pieces of land in the physical world and some playfields are bounded as defined playfields such as a playmat. Prelim Resp. at 19–22;

Paper 11, 2. Patent Owner also cites to dictionary definitions of playfield that support its proposed construction. Prelim. Resp. 20; Paper 12, 3.

At this stage, we do not find Patent Owner's proposed construction persuasive for several reasons. The claim does not recite "a defined physical playfield." Rather, the claim recites "a physical playfield." The Specification's discussions of "playfield" cited by Patent Owner use non-limiting language such as "for example" and "may" in describing the playfield. *See* Ex. 1001, 2:37–41, 2:61–67, 3:21–23, 8:50–64. The disclosed examples of "a physical playfield" include "the physical world, a physical environment, or a defined physical playfield" (Ex. 1001, 1:56–58), which indicates that the applicant intended "a physical playfield" as claimed to encompass more than a defined or "bounded" physical playfield. This indication is consistent with the Specification's disclosure that "the game world corresponds to an actual area of the physical world (such as the planet Earth or New York City)." Ex. 1001, 11:12–14. Thus, in one disclosed embodiment, the physical playfield is the entire (unbounded) world.

We are persuaded that the Specification's descriptions of various embodiments with defined playfields and undefined playfields support construing the scope of a "physical playfield" as encompassing defined boundaries, or a "bounded" playfield, as well as a "physical playfield" with undefined boundaries, or an "unbounded" playfield. Limiting the claim term to only "bounded" play spaces would read out broader embodiments from the claim scope. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996) (holding that interpreting a claim to exclude an embodiment disclosed in the written description "is rarely, if ever, correct and would

require highly persuasive evidentiary support, which is wholly absent in this case”).

We, therefore, agree at this juncture with Petitioner’s claim construction analysis, and note that the alleged goal of improving the safety in virtual reality gaming does not support Patent Owner’s construction. Paper 11, 2 (Petitioner arguing that the ’277 patent’s description of an augmented reality system where a user can view the physical surroundings makes a “bounded” physical playfield unnecessary). Further, we find unpersuasive, at this juncture, Patent Owner’s arguments related to embodiments of how the information about the playfield is captured and stored to construct the playfield and perform scaling. Prelim. Resp. 7-13. As Petitioner notes, and we agree, none of these features are recited in the independent claims. Paper 10, 2. And, to the extent there is a distinction between being “on” or “off” the “physical playfield” as Patent Owner argues, the claim language requires no such determination or detection.

Finally, the extrinsic dictionary definitions cited by Patent Owner are “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005). And in any event, we may not rely on dictionary definitions that contradict what the patent documents describe. *See Advanced Fiber Tech. (AFT) Trust v. J & L Fiber Servs., Inc.*, 674 F.3d 1365, 1374–75 (Fed. Cir. 2012) (holding erroneous a construction informed by a dictionary definition but in disagreement with one sentence of the written description).

Accordingly, for the reasons given above, we do not adopt Patent Owner’s proposed construction. Despite our disagreement with the

construction, we nonetheless consider it in our unpatentability analysis below and determine at this stage that the cited prior art teaches “a physical playfield” even under Patent Owner’s proposed construction.

C. Analysis of the Asserted Ground

Petitioner contends that claims 1, 8, 13, and 20 would have been obvious over the combination of Jaszlics and Rallison. Pet. 10–40. In doing so, Petitioner explains how the combination satisfies each claim limitation and provides supporting testimony from its expert, Dr. Cooperstock. *See id.* In response, Patent Owner contends that Jaszlics and Rallison do not teach certain limitations of independent claim 1 and that a person of ordinary skill in the art would not have combined the teachings of Jaszlics and Rallison. Prelim. Resp. 29–39.

Patent Owner contends that the Petition has not shown that the combination teaches “a physical playfield” and a “head-mounted device [that] includes a processor” as claimed. Prelim. Resp. 29–35. Patent Owner also contends that the Petition has not shown a reason to modify Jaszlics’s head-mounted display to include a processor, either alone or in combination with Rallison, and that Jaszlics and Rallison are incompatible. *Id.* at 35–39.

Patent Owner’s contention that the combination does not teach “a physical playfield”

Patent Owner contends that the combination of Jaszlics and Rallison does not teach a physical playfield as properly construed. Prelim. Resp. 29–30. As discussed in our claim construction above, we are not persuaded by Patent Owner’s argument that the claim term “physical playfield” is limited to a bounded physical play space. However, even under this proposed narrower construction, we are sufficiently persuaded that the combination teaches the recited “physical playfield.”

Jaszlics discloses that its system creates virtual elements in theme parks and entertainment-oriented environments. Ex. 1003, 2:14–16, 2:67–3:1; *see id.* at 18:48–55. We are sufficiently persuaded that a theme park is a bounded physical play space. In addition, Jaszlics discloses training armored vehicle crews by using both virtual vehicles and actual vehicles moving over real terrain. Ex. 1003, 1:38–60. We are sufficiently persuaded that a skilled artisan would have envisioned that such training occurs on a military base, which is bounded.⁴ Jaszlics further discloses that its training field includes boundary markers. Ex. 1003, Fig. 15, 10:1–9. We are sufficiently persuaded that the tank training field of Jaszlics, which has boundary markers and is located on a military base, is a bounded physical play space. Therefore, even under Patent Owner’s narrower construction, we are sufficiently persuaded that a person of ordinary skill would have recognized that a user would have played at least some of the video games provided by the combined system of Jaszlics and Rallison in a bounded physical play space such as a theme park or military base.

Patent Owner’s contention that Jaszlics does not suggest a head-mounted device including a processor

Patent Owner contends that Jaszlics does not disclose a head-mounted device that includes a processor. Prelim. Resp. 30–35. Patent Owner concedes that Jaszlics’s goggles are a display, such as display 111 of Figure 2. Prelim. Resp. 32. Then Patent Owner states that even if these goggles were a “simple computer monitor,” they need not include a processor. *Id.* at 33. This argument is bare attorney argument and finds fault with Jaszlics

⁴ Compare with Ex. 1001, 5:22–27 (describing utilizing the disclosed game in a military base).

under inherency rather than obviousness—focusing on whether a processor is necessarily present rather than whether the location of a processor in Jaszlics’s visor would have been obvious. *See W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1555 (Fed. Cir. 1983) (“Inherency and obviousness are distinct concepts.”). Patent Owner’s argument does not persuasively undermine Petitioner’s evidence that a person of ordinary skill in the art would have found obvious that the Jaszlics visor would have included a processor, such as an integrated display controller or image signal processing circuitry to provide images to the display of the head-mounted device. Pet. 21; Ex. 1002 ¶ 74 (relying on Ex. 1014, page 3, “display generator”). Further, the Petition relies on the combination of Jaszlics and Rallison to teach this limitation. Patent Owner’s contentions against Jaszlics alone do not address Petitioner’s combination.

Patent Owner’s contention that there is no motivation to combine Jaszlics and Rallison

Patent Owner contends that Jaszlics discloses a complete and functioning system that already achieves its stated goals without requiring a processor in the display device. Prelim. Resp. 36–37. Patent Owner’s contention is attorney argument unsupported by evidence and does not address Dr. Cooperstock’s testimony that a person of ordinary skill in the art would have understood that the electronic goggles of Jaszlics would include a processor to provide images to the head-mounted display. Ex. 1003 ¶ 74; *see* Pet. 21. Patent Owner’s contention also does not address Dr. Cooperstock’s testimony that because the details of a head-mounted device are not a focus of Jaszlics, a person of ordinary skill in the art, seeking to implement and adapt Jaszlics, would have naturally turned to Rallison for its additional disclosures. Ex. 1003 ¶ 79; Pet. 24.

Even if we were to accept Patent Owner’s unsupported contention that the location of Jaszlics’s image processor is outside of the display device, this would result in only two identified, predictable locations of the image processor. The image processor would either be located outside of the display device or inside of the display device. We are persuaded that substituting Rallison’s location of inside the display device instead of outside the display device provides sufficient reason to combine the teachings of Jaszlics and Rallison. *See Uber Techs., Inc. v. X One, Inc.*, 957 F.3d 1334, 1339–40 (Fed. Cir. 2020) (reversing the Board’s determination of lack of motivation “because Okubo’s terminal-side plotting and Konishi’s server-side plotting were both well known in the art, and were the only two identified, predictable solutions for transmitting a map and plotting locations, it would have been obvious to substitute server-side plotting for terminal-side plotting in a combination of Okubo and Konishi”) (citing *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007)).

Patent Owner contends that the Petition does not explain how incorporating Rallison’s processor into Jaszlics’s goggles would have yielded a benefit. Prelim. Resp. 37. Petitioner contends that Jaszlics discloses a head-mounted display device that displays images to a user. Pet. 21–22 (citing Ex. 1003, 1:64–67, 5:13–18, 10:63–67, 11:16–18). Petitioner contends that Rallison discloses a head-mounted display device that includes an image processor to convert a video signal into a series of images displayed to the user. *Id.* at 22–23 (citing Ex. 1004, 10:4–14, Fig. 8). Petitioner contends that a person of ordinary skill would have included Rallison’s image processor in Jaszlics’s head-mounted display device for the benefit of converting the video signal received by the display device into a

series of images as taught by Rallison. *Id.* at 24 (citing Ex. 1004, 10:4–14). Petitioner also contends that using Rallison’s head-mounted image processor in Jaszlics’s head-mounted display device would have improved Jaszlics’s device in the same way, namely, by converting a video signal into a series of images and showing the images on the display. *Id.* We are persuaded that Petitioner has shown sufficient reasons for incorporating Rallison’s head-mounted image processor into Jaszlics’s head-mounted display device.

Patent Owner’s contention that Jaszlics’s video see-through display is incompatible with Rallison’s optical see-through display

Patent Owner contends that Jaszlics’s system is entirely camera based and relies on a real-world video feed to see the real world, and that Rallison does not have a camera. Prelim. Resp. 38. Patent Owner contends that Rallison uses an optical see-through display to provide a user with a simultaneous view of the environment and a generated image. *Id.* Patent Owner contends that the Petition does not explain how the processor of Rallison would work in the video camera-based system of Jaszlics. *Id.* at 38–39.

Patent Owner’s contention is inconsistent with Jaszlics’s disclosure that in some embodiments, the “combined image is presented in an . . . optical display.” Ex. 1003, 2:54–55; *see id.* at 9:9–30, 9:51–54 (“In cases when the observer would normally observe the external world through an optical or other instrument, the virtual images can be injected into this instrument.”). We are sufficiently persuaded that Jaszlics discloses an optical see-through display to provide a user with a simultaneous view of the environment and a generated image.

Even were we to accept Patent Owner’s contention that Jaszlics’s system is entirely camera based, we are sufficiently persuaded that the

teachings of Jaszlics and Rallison are compatible. Jaszlics discloses a system that combines a virtual image with a real-world image to generate combined virtual and real-world image data. Ex. 1003, Fig. 2, 8:53–56, 9:32–39. Rallison discloses a head-mounted device that receives image data from a source such as a computer or a video receiver and converts the image data into a series of images using an image processor. Ex. 1004, Fig. 8, 7:34–44, 10:4–14, 10:46–48, 18:24–30, 19:65–67. Rallison further discloses an embodiment in which its display is not optically see-through, so that the user only views the video images. *Id.* at 11:45–49, 16:57–59; *see id.* at 10:46–53. We are sufficiently persuaded on this record that generating a combined virtual and real-world video signal as taught by Jaszlics and converting the video signal into a series of images using a head-mounted image processor as taught by Rallison was within the level of ordinary skill in the art at the time of the invention. Ex. 1002 ¶ 80; Ex. 1004, 10:7–9 (“The electronics used for [generating the image] can be those generally well-known in the art for producing video images.”). We are sufficiently persuaded that the resulting images would be displayed on the non-transparent display of Jaszlics. Patent Owner’s contentions to the contrary are attorney argument unsupported by evidence.

Conclusion

We determine that Petitioner demonstrates a reasonable likelihood of showing that claim 1 is unpatentable over the combination of Jaszlics and

Rallison. Patent Owner does not dispute Petitioner's showing that the combination teaches the limitations of dependent claims 8, 13, and 20.

III. CONCLUSION

Based on the arguments presented in the Petition, we conclude that Petitioner has demonstrated a reasonable likelihood of prevailing with respect to at least one claim of the '277 patent challenged in the Petition. Accordingly, we institute a trial on all claims and all grounds asserted in the Petition. The Board has not made a final determination under 35 U.S.C. § 318(a) with respect to the patentability of the challenged claims.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1, 3, and 6–8 of the '277 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '277 patent shall commence on the entry date of this Decision, and notice is hereby given of the institution of a trial.

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