

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMAZON.COM, INC.,
AMAZON.COM SERVICES LLC, and
AMAZON WEB SERVICES, INC.,
Petitioners

v.

SOUNDCLEAR TECHNOLOGIES LLC,
Patent Owner

IPR2025-00565
U.S. Patent No. 11,069,337

PATENT OWNER'S REQUEST FOR DIRECTOR REVIEW

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I. INTRODUCTION

The Final Written Decision (“FWD”) determined that prior art that measures “distance” to adjust “outputs” invalidates claims that “classify” “*input* voices.” At institution, the Board determined that the prior art could only meet the claims if different “voices” were construed to be any change in “volume” that accompanies a change in “distance”—the assumption being that if someone walks further from a device, their voice will change because the volume reaching the device will be lower. The Board applied the same reasoning throughout the FWD, *except* with regard to Petitioners’ objection on Reply to the Board’s preliminary construction. That objection argued that the preliminary construction did not broaden the claims *enough* and that different “voices” should mean different “distances” *regardless of* volume or any voice characteristic. Instead of rejecting that argument as being inconsistent with the preliminary construction, the Board in its FWD *agreed* with Petitioners’ argument and denied ever having construed these terms in the first place. Effectively, the Board applied its preliminary construction, but then further broadened that scope *ad hoc* to accommodate Petitioners’ Reply argument. The result is an FWD based on inconsistent analysis and reasoning which constitutes reversible error.

Even setting aside the question of whether a *de facto* construction was applied, the FWD’s merits analysis fails. The limitations at issue recite “a voice

classifying unit configured to analyze a voice spoken by a user . . . to classify the voice as either one of a first voice or a second voice based on the distance between the user and the voice-content control device.” EX-1001, cl. 1; *see also* cls. 4-5 (similar). The prior art does not teach or suggest “*classifying the [user] voice . . . based on the distance* between the user and the voice-content control device” as required by the claims. And there is no argument in the Petition, or any basis in the record, upon which to make that inference.

The foregoing infirmities constitute legal and factual error. Patent Owner thus respectfully requests that the Director reverse the FWD’s decision that claims 1-5 of the challenged ’337 patent are unpatentable.

II. PROCEDURAL BACKGROUND

The Board invalidated all asserted claims as anticipated by US 2017/0083281 A1 (EX-1003) (“Shin”) and as obvious over JP 2005-202076 A1 (EX-1004) (“Shimomura”). The claims require “classify[ing] the voice [spoken by a user] as either one of a first voice or a second voice based on the distance between the user and the voice-content control device” EX-1001, cl. 1. Nothing in the prior art demonstrates any intent to classify user voices based on distance. FWD, 20-21, 54-55. Both primary prior art references only use distance between a user and a robot to modify a robot’s speech output, not to classify the user’s voice. *Id.*

III. ARGUMENT

A. Claim Construction

The FWD claims the Board did not preliminarily construe “classify” and “voice” and that plain and ordinary meaning controls. FWD, 13. But the FWD does not apply the *plain language* of “classify” or “voice” to the prior art. Instead, it relies on Shin’s and Shimomura’s modification of a robot’s output speech based on a determination of distance between the user and the robot as a classification of a user’s voice.

That gap is what led to the Board’s preliminary construction. At institution, the Board explained how the preliminary construction affected the scope of the phrase “classifying the voice” in the claims. It explained what Petitioner was required to “show” in terms of voice classification according to the preliminary construction: “*Accordingly, ... our preliminary claim construction only requires Petitioner to show ... changing distance (and associated changing voice volume) ...*” D.I. 16 (emphasis added). In the next sentence, the Board emphasized its effect on the “classify[]” and “voice” terms:

We *emphasize* that our preliminary claim construction ... renders unpersuasive Patent Owner’s arguments regarding the classification of the 1[b] ‘voice as either one of a first voice or a second voice’”

Id. (emphasis added). The Board affirmed that analysis in one part of the FWD. FWD, 12 (“[W]e maintain the Board panel’s preliminary construction. . . .”).

But then the Board contradicts itself in the FWD. In analyzing and applying the prior art to the claim limitations, the Board concluded that prior art that uses a proximity sensor to measure distance—that adjusts the robot’s output without *any regard* to the identity of a voice—invalidates claims that recite “classifying” “voice[s].” That conclusion relies on a different construction than the one purportedly applied by the Board.

The Board effectively construes the claims when “the outcome of the analysis ... establishes the scope (e.g., the boundaries) and meaning of the patented subject matter.” *Google LLC v. EcoFactor, Inc.*, 92 F.4th 1049, 1055 (Fed. Cir. 2024); *see also HTC Corp. v. Cellular Commc’ns Equip., LLC*, 877 F.3d 1361, 1367 (Fed. Cir. 2017) (holding that “Board findings establishing the scope of the patented subject matter may fall within the ambit of claim construction,” so that “the Board’s expression of its understanding of the scope of the [disputed claim term] is properly before [the Court] on appeal”). Here, the Board established the scope (e.g., the boundaries) and meaning of the patented subject matter when it determined that the prior art’s use of distance to determine a robot’s output “classif[ies] the [user’s] voice.” As these limitations are in the independent claims, every ground in the Petition fails without the Board’s unsupported construction. Thus, the FWD should be reversed as a matter of law.

B. The Prior Art Does Not Classify User’s Voices Based On Distance

Neither Shin nor Shimomura “classify the voice as either one of a first voice or a second voice based on the distance between the user and the voice-content control device.” In holding otherwise, the FWD made erroneous findings of material fact and erroneous conclusions of law as discussed below. Patent Owner requests the Director correct and reverse the FWD’s erroneous findings.

1. Shin

a) Shin Does Not Classify User Voices Based on Distance

Shin discloses a robot that interprets what a user is saying and produces a response based on the user’s distance (D). EX-1003, Abstract, Figs. 1A-B, 2. The FWD relied on Table 3 of Shin as disclosing a voice classification. It only discloses “Distance (D)” and “Output” content:

TABLE 3	
Distance (D) between user and electronic device	Output amount of information of content
$D < 1 \text{ m}$	Amount of information of original content
$1 \text{ m} \leq D < 2 \text{ m}$	Content of first abbreviation level
$2 \text{ m} \leq D < 3 \text{ m}$	Content of second abbreviation level
$3 \text{ m} \leq D < 4 \text{ m}$	Content of third abbreviation level
$D \geq 4 \text{ m}$	Content of fourth abbreviation level (abstract content)

FWD, 35 (reproducing EX-1003 [Shin], [0086]). Shin does not “classify[] the voice [spoken by a *user*] as either one of a first voice or a second voice based on distance.” It classifies the *robot’s output* content based on distance.

The FWD recognized that Shin fails to provide any express disclosure. However, it reasoned that “Shin’s processor 120 *effectively* performs the voice classification” FWD, 36 (emphasis added). But that reasoning is extraneous to the record. Neither Petitioners nor their expert, ever argued what the prior art *effectively* does.

Even then, the Board only reached its determination by conflating distance with voice. Shin discloses analyzing a user’s voice based on volume and speech rate. *See, e.g.*, EX-1003, [0037]. But *that* analysis has nothing to do with distance. It is based on Shin’s audio input module 151 (e.g., a microphone (EX-1003, [0062])), not the claimed distance. For distance, Shin states that “electronic device 101 may determine a distance between the user and the electronic device 101 based on the distance derived from the volume of the speech and the distance computed by the distance detection module 180.” EX-1003, [0077]. The distance detection module 180 is, for example, “an infra-red sensor, an RF sensor, an ultrasonic sensor, and the like.” *Id.*, [0066]. Thus, Shin does not classify a user’s voice as either a first voice or second voice based on distance from the user as required by the claims. Instead, Shin determines distance of a user from the robot based on a

distance detection module and volume. EX-1003, [0077]. Shin then uses the calculated distance to classify the *robot's output*, not the *user's voice* as required by the claims. *Id.*; *see id.*, [0077]-[0088]. Because the FWD misstates the claim language and disclosure of Shin, the Director should reverse those findings.

b) The FWD's New Shin Theories Fail

The FWD cited several additional portions of Shin for the first time related to *analysis* of the incoming voice, stating “Shin is replete with other disclosures indicating that its voice analysis includes more than just analyzing speech content.” FWD, 40-41. But none of the FWD's newly-identified citations relate to distance or Table 3 of Shin that the Petition relied on. Instead, they involve obtaining user speech rate, assessing user volume, identifying keywords, or analyzing content—which can be done with natural language processing rather than distance. *Id.* Further, the Board's new arguments are untimely as they do not appear to be based on the arguments identified by the parties.

c) The Reply's New Theory Also Fails and Should Be Excluded

The POR identified that Shin does not disclose classifying a user's voice based on distance. POR, 29-31. On reply, Petitioner introduced a new argument that Shin Fig. 5A determines distance “through analysis of voice input.” Reply, 14-15; Sur-Reply, 13-14. The Director should exclude this new argument. PTAB Trial Practice Guide, 73 (“Petitioner may not submit new evidence or argument in reply

that it could have presented earlier, e.g. to make out a prima facie case of unpatentability.”).

Petitioners’ counsel argued that disclosing a “new argument” was justified. Paper 38 (Hr’g Tr.), 19:25-20:8. But Petitioner’s reliance on Shin Fig. 5A was a new theory, one that relies on a new and separate disclosure of a distinct process in Shin in attempt to make out a new prima facie case of unpatentability. The FWD never addressed Petitioners’ new theory. FWD, 37-41. *Provisur Techs., Inc. v. Weber, Inc.*, 50 F.4th 117, 123-124 (Fed. Cir. 2022). Accordingly, the Director should address and exclude this new theory.

Petitioners’ new theory also fails substantively, because the cited portions of Shin are not classifying a user’s voice based on distance as required by the claims; instead, they are analyzing volume to help determine distance from a user. Sur-Reply, 14-15. Shin’s Fig. 5A operation 503 “determine[s] the distance between the user and the electronic device 101 based on the obtained volume of the speech.” EX-1004, Fig. 5A, [0076]. Limitation 1[b] requires classifying a voice based on the distance. Thus, Fig. 5A’s disclosure (determining distance using volume) is nearly the opposite of what the claim requires (classifying voice using distance). Accordingly, Petitioners’ new theory is incorrect.

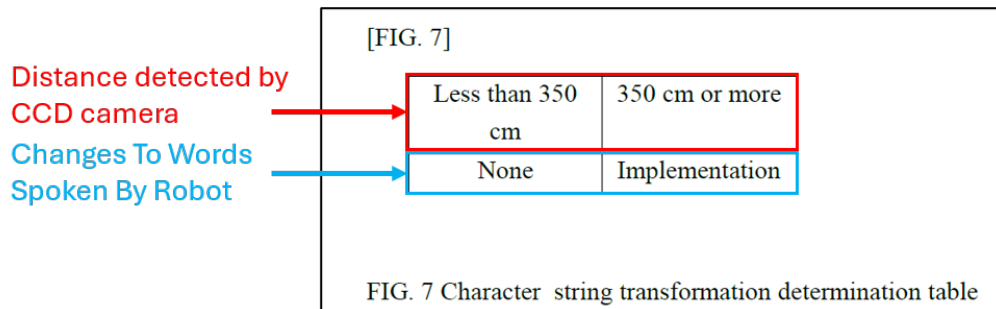
2. Shimomura Does Not Classify User Voices Based on Distance

Shimomura, like Shin, discloses a robot that determines its own voice output (not the user's voice) depending on the distance between the robot and user. EX-1004, Abstract. It uses a pair of charged-coupled device (CCD) cameras as the robot's eyes. *Id.*, [0021]. These CCD cameras are used as a "distance detection means" "for detecting the distance to the conversation partner user." *Id.*, [0094] Thus, Shimomura does not use voice analysis to determine distance. *Id.* Nor does Shimomura "classify the [user's] voice ... based on the distance between the user and the voice-content control device" as required by the claims.

The FWD disagreed, citing Shimomura speech recognition unit 42, which "performs various sound-related recognition processes such as speech recognition, speaker recognition, and sound source direction recognition based on the speech signal S2 provided by ... microphone[s] 21." FWD, 69-70 (citing EX-1004, [0040].) Shimomura's speech recognition unit 42 has nothing to do with determining distance. And nothing in the FWD (or Shimomura) indicates that speech recognition unit 42 classifies voices based on distance.

For classifying voices based on distance, the FWD relied on Shimomura Fig. 7. FWD, 70. But Shimomura Figure 7 has nothing to do with a *user's voice*, let alone *classifying* a user's voice. Like Shin Table 3, Shimomura Figure 7 (below)

receives distance information (from image recognition unit 41) and determines the robot's output:



EX-1004, Fig. 7 (annotated); *see also id.*, ¶[0059]. The changes to the robot's output involve determining "whether or not" the *robot* "insert[s] 'ne' after each phrase" it speaks. EX-1004, [0058]. It has nothing to do with the *user's* voice. Likewise, the distance information is generated by a CCD camera or similar device and has nothing to do with the user's voice. *Id.*, [0093].

As a result, the FWD *sua sponte* inserted its own analysis, speculating it would have been obvious to supply the missing limitation. FWD, 71-72 (Shimomura "teaches or suggests").¹ But the Petition asserted this limitation was disclosed by Shimomura, not that it would have been obvious. Petition, 37-40.

¹ Assessing what the prior art "suggests" is an obviousness inquiry. *Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1049 (Fed. Cir. 2019); *see also Eli Lilly*, 849 F.3d at 1075. The Petition argues that Shimomura expressly discloses limitation 1[b] and does not rely on obviousness to fill the gap of voice

The FWD also injected the new argument that “Shimomura is not limited to detecting distance using cameras 20, but clearly contemplates using other means for detecting distance, such as using a distance sensor.” FWD, 75. But even if a distance sensor other than cameras were used, that still has nothing to do with classifying a *user’s* voice based on distance as required by the claims. In other words, it doesn’t matter how Shimomura’s Fig. 7 calculates distance because Shimomura Fig. 7 classifies the *robot’s* output, not the *user’s* voice as required by the claims. Accordingly, the Director should reverse.

C. The Board Untimely Adopted Petitioners’ Request for a Scope Broader than The Preliminary Construction

Petitioners realized that there was no support in the Petition for any classification of “volume” (let alone “voice”). On Reply, they objected to the Board’s preliminary construction on the grounds that it was not broad *enough*: They argued that the Board’s preliminary construction needed to go beyond equating voice to some combination of distance and volume:

“To the extent that the Board found the claims to *require* a change in distance *and* volume, Petitioners agree with Patent Owner that this would be incorrect.”

classification. Pet., 37-40. *See also* Reply, 26 (arguing “no modifications [to the prior art] are required to arrive at the claimed invention”) (quoting DI, 18).

Reply, 5 (emphasis in italics in original). Thus, the Reply recognized that the Petition fails on all grounds unless voice means distance. The Board adopted Petitioner’s argument, holding that tables showing distance “and nothing else” (EX-2015, 72:12-73:8) demonstrated classification of voices. FWD, 37, 72. The FWD’s implicit construction improperly broadened the scope of the claims per the Reply’s belated suggestion. 37 C.F.R. §42.104(b)(3) (Petition “must identify ... [h]ow the challenged claim is to be construed”); *Apple Inc. v. Corephotonics, Ltd.*, 81 F.4th 1353, 1360 (Fed. Cir. 2023).

D. No Support in the FWD for the Board’s Inferences

The Board implicitly acknowledged that neither Shin nor Shimomura expressly discloses classifying user voices based on distance. FWD, 36 (relying only on what Shin “effectively” does) and 71 (“Shimomura’s Figure 7 does not mention voice or classification”). The Board cannot fill those gaps in the prior art with what it might infer or envision. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 851 F.3d 1270, 1274 (Fed. Cir. 2017); *see also In re Chudik*, 851 F.3d 1365, 1371-74 (Fed. Cir. 2017); *In re Gates*, 787 F. App’x 741, 743-45 (Fed. Cir. 2019); *see* . That is *per se* legal error.

The FWD also erred because it relied on assessing the inputs to Shin and Shimomura and the output tables. That analysis directly contradicts the record. When asked, “Would a POSITA have been able to determine how a device

classifies inputs simply by looking at how the device adjusts outputs?” Petitioners’ expert stated, “I think, in general, the answer would be no.” EX-2016, 62:22-63:8. So, the Board was wrong to rely solely on inputs and outputs to render its decision.

The Board improperly attempted to convert the lack of an *ipsissimis verbis* test into an affirmative basis for ignoring the requirements of inherency and substantial evidence. FWD, 36. It even admitted to characterizing what—in its view—the prior art “*effectively*” does. FWD, 41 (emphasis added). There is no argument or evidence in the record about what the prior art “*effectively*” does or what a POSITA would have inferred or understood from the prior art. The Petition does not even include any version of the word “effective,” “infer,” or “understand” when addressing limitation 1[b]. This is the exact type of failure that was recognized and overturned in *Smaxtect Inc. v. St Reproductive Techs., LLC*, IPR2024-00875, Paper 54 (May 18, 2026):

Patent Owner argues that the cited evidence “refer[s] only to alleged expressions that use ‘temperature’ and ‘milk production’ as inputs, not ‘treatments,’” and “never mention[s] Trevarthen’s treatment log, let alone address Patent Owner’s argument that it would not be used in a logical expression.”

The above holding is directly applicable here, where the Board introduced details the prior art never disclosed.

Gaps where a “reference is silent” can only be filled by inherency. *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1369 (Fed. Cir. 2003) (citations omitted). The Petition does not rely on inherency, nor did Petitioners ever assert that it did. POR, 35-36, 39; POSR, 8. Accordingly, the FWD’s inferences about the prior art must be reversed.

E. No Support in the Petition for the Board’s Inferences

The Petition relies on two things to argue that the prior art discloses voice classification: (1) a conclusory one-sentence assumption beginning with “To do so . . .” (repeated verbatim for each primary reference) and (2) tables that show output of a robot based on one independent distance variable. Pet., 13-14 and 39-40.

Petitioner’s expert admitted that the distance tables disclose distance and “nothing else.” EX-2015, 72:12-73:8. Nothing contradicts that testimony. *See Wasica Fin. GmbH v. Cont’l Auto. Sys.*, 853 F.3d 1272, 1284-85 (Fed. Cir. 2017) (affirming acceptance of expert testimony over bare attorney argument). The only other arguments in the Petition are purely conclusory: “To do so” recitations mirrored by Petitioners’ expert devoid of any analysis or support:

Petition	Petitioners’ Expert
“[describing inputs and then outputs]. <i>To do so</i>, Shin’s processor classifies the voice based on the distance.” Pet. 13 (emphasis added).	“[describing inputs and then outputs]. <i>To do so</i>, Shin’s processor classifies the voice based on the distance.” EX-1002, ¶ 63 (emphasis added).

Petition	Petitioners' Expert
“[describing inputs and then outputs]. <i>To do so</i> , Shimomura’s control unit first classifies the voice.” Pet. 39 (emphasis added).	“[describing inputs and then outputs]. <i>To do so</i> , Shimomura’s control unit first classifies the voice.” EX-1002, ¶ 138 (emphasis added).

Petitioner declined to address this missing support at the trial. Hr’g Tr., 43:4-47:22. The Board neither identified nor relied on any support in the Petition. FWD, 36-37, 72. Instead, it issued a ruling that is just as conclusory as the Petition’s analysis. *Id.* The lack of analysis above is especially problematic in view of the testimony of Petitioners’ expert. In addition to stating that the tables disclose only distance, he admitted that analyzing inputs and outputs is not sufficient to assess the prior art. EX-2016, 62:22-63:8. The Board failed to address that uncontested testimony. *Weber, Inc. v. Provisur Techs., Inc.*, IPR2022-00599, Paper 74, 5-6 (Director Nov. 29, 2023) (vacating final decision after “find[ing] that Board failed to address Patent Owner’s evidence supporting its arguments on motivation to combine”).

IV. CONCLUSION

For the foregoing reasons, the Board’s findings that claims 1 through 5 of the ’337 patent were invalid was based on erroneous matters of law and the failure to consider issues of material fact.

Dated: August 26, 2026

Respectfully submitted,

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