

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

138 EAST LCD ADVANCEMENTS LIMITED,
Patent Owner.

Case No. IPR2024-00960
U.S. Patent No. 7,486,807

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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EXHIBITS

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1001	U.S. Patent No. 7,486,807 to Nagahashi (“the ’807 patent”)
1002	Prosecution History of U.S. Patent No. 7,486,807
1003	Declaration of Robert Stevenson, Ph.D. (“Stevenson”)
1004	CV of Robert Stevenson, Ph.D.
1005	U.S. Patent Appl. Pub. No. 2002/0188602 to Stubler et al. (“Stubler”)
1006	U.S. Patent No. 6,038,333 to Wang (“Wang”)
1007	Kah-Kay Sung and Tomaso Poggio, <i>Example-Based Learning for View-Based Human Face Detection</i> , IEEE Transactions on Pattern Analysis & Mach. Intel., 20(1), pp. 39-51 (Jan. 1998)
1008	U.S. Patent No. 6,282,317 to Luo et al. (“Luo”)
1009	Jie Yang and Alex Waibel, <i>A Real-Time Face Tracker</i> , Proceedings of Third IEEE Workshop on Applications of Comput. Vision, WACV, pp. 142-47 (1996)
1010	Matthew Turk and Alex Pentland, <i>Eigenfaces for Recognition</i> , J. Cognitive Neurosci., 3(1), pp. 71-86 (1991)
1011	Anil K. Jain and Richard C. Dubes, <i>Algorithms for Clustering Data</i> (Prentice-Hall, Inc. 1988)
1012	<i>Longitude Licensing Ltd. v. Google, LLC</i> , Case No. 3:23-cv-03046-VC, Order Granting Motion to Dismiss (N.D. Cal. Oct. 27, 2023)
1013	<i>Longitude Licensing Ltd. v. Google LLC</i> , Case No. 3:23-cv-03046-VC, Order Granting Plaintiff’s Unopposed Motion for Voluntary Dismissal (N.D. Cal. Nov. 15, 2023)
1014	<i>Longitude Licensing Ltd. v. Google, LLC</i> , No. 3:23-cv-03046-VC, Complaint for Patent Infringement (N.D. Cal. June 21, 2023).

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1015	<i>Longitude Licensing Ltd. v. Google LLC</i> , No. 3:23-cv-03046-VC, Final Judgment (N.D. Cal. Nov. 15, 2023).
1016	Deposition Transcript of Samuel Wu, taken on June 10, 2025

I. INTRODUCTION

Patent Owner's Response (Paper 17, "POR") disputes only whether Stubler anticipates or renders obvious "an object of the image being previously [stored] in the database" (in element [1a]) and "an object information inputting section for confirming by the user, adding, and correcting the keyword which is proposed by the keyword proposing section when the inputted object acknowledged by the object acknowledging section is similar to the object of the image previously contained in the database" (in element [1e]). Patent Owner argues that the claims are not unpatentable based on its unduly narrow construction that "similar to the object of the image previously contained in the database" should mean "sufficiently similar to identify the specific object of the image previously contained in the database." POR 13-21. Patent Owner argues that Stubler does not anticipate or render obvious the disputed limitations under this incorrect construction. POR 27-42.

The Board should reject Patent Owner's construction, which merely repackages Patent Owner's arguments from the Preliminary Response that the Board already rejected in the Institution Decision (Paper 9; "DI"). Patent Owner's construction impermissibly narrows the claims to example embodiments, while simultaneously imparting ambiguity by injecting the term "sufficiently" into the construction without explaining how to determine "sufficiently." The '807 patent

does not describe, let alone require, Patent Owner’s “sufficiently similar” construction to achieve its goal of efficiently proposing keywords. The embodiments that Patent Owner relies on (e.g., faces and face-similarity detection) are merely examples, not limiting of the claims. Moreover, Patent Owner’s narrow construction and reading of claim 1 are already encompassed by dependent claim 2, making it improper to read them into claim 1. The Board correctly rejected Patent Owner’s narrow interpretation at institution. *See* DI 15 (“[c]laim 1 merely recites generic similarity”). Nothing in the POR rebuts the Board’s prior conclusions. The Board should reject Patent Owner’s construction.

Patent Owner’s subsequent arguments for claims 2-14 are premised on its incorrect construction and fail for the same reasons.

Even if the Board considers Patent Owner’s construction, Stubler discloses it by teaching using “known algorithms” to detect similar faces and facial similarity from region metadata.

Accordingly, the Board should find all challenged claims unpatentable.

II. PATENT OWNER’S CONSTRUCTION SHOULD BE REJECTED BECAUSE IT CONTRADICTS THE INTRINSIC RECORD

Patent Owner incorrectly construes “similar to the object of the image previously contained in the database” to require retrieving a stored image containing a “*specific object*” or “determining similarity of *specific persons*,” and argues that “a ‘specific object’ and a ‘specific person’ means more than high-level,

categorical similarity.” POR 15-16, 21 (“[T]he claim term ‘similar to the object of the image previously contained in the database’ must mean more than generic similarity.”). The intrinsic record contradicts Patent Owner’s positions.

A. The Claims Contradict Patent Owner’s Construction

The ’807 patent’s claims refute Patent Owner’s construction because the alleged “two-step” process (generic object detection and face similarity determination) that Patent Owner attempts to read into claim 1 is recited in claim 2, making it improper to import into independent claim 1.

Patent Owner acknowledges that “dependent claim 2 recites that the object acknowledging section includes ‘a face image similarity determining section’ that ‘detect[s] a similar face image stored in the database,’” and concludes that “[t]his recitation must go beyond mere generic similarity because substantially *all* faces share *generically* similar features.” POR 20. But the limitations recited in dependent claim 2 should not be read into independent claim 1, which is presumed broader. *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1374, 1376 (Fed. Cir. 2014).

Patent Owner reliance on claim 5, POR 20-21, also fails because claim 5 depends from *claim 2*, which includes the “face image similarity determining section.” Ex. 1001, 14:8. By depending from claim 2 (and thereby incorporating its

limitations), claim 5 makes clear that Patent Owner’s argued similarity determination is not required by independent claim 1.

B. The Specification Contradicts Patent Owner’s Construction Because It Describes Identifying Similar Objects Previously Contained in the Database at a Higher Level of Generality than Patent Owner Would Require

Patent Owner’s arguments, *see* POR 15-19, take certain specification phrases out of context and ignore other embodiments that demonstrate that “similar to the object of the image previously contained in the database” may be an object such as a “human” or “car” and this phrase does not have to identify a unique object,¹ such as a specific person or a specific car.

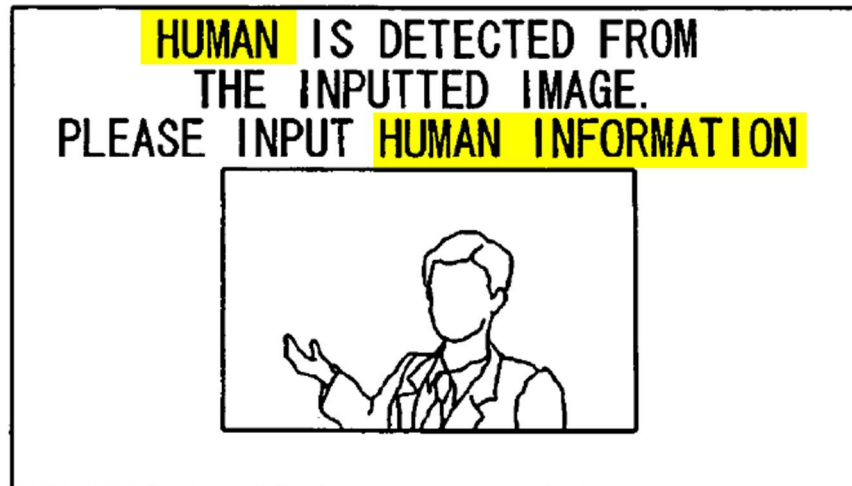
For example, the ’807 patent explains that “[t]he object of the present invention is to add the keywords efficiently by *detecting the object* (for example, *a human*) in the image.” Ex. 1001, 3:21-27 (emphases added). “[A] predetermined object which is inputted in the image (such as *a human or a car*) *is acknowledged (detected)* by the object acknowledging section”; then, “the keywords which *relate*

¹ Patent Owner appears to use “specific” to mean a unique object (e.g., the person named “Jiro”). But “specific” in the ’807 patent does not require uniqueness; rather, it can refer to an object type (e.g., “human” or “car”), as explained herein. Petitioner uses “unique” to avoid confusion imparted by Patent Owner using “specific” to suggest uniqueness.

to the object are proposed to the user by the keyword proposing section.” *Id.*, 4:7-13 (emphases added), 4:49-68 (“an object ... is *a human* such that the keyword (*human* information) is confirmed for the detected human”), 6:49-54. Indeed, the ’807 patent explains that “a *specific object*” may be “a human or a car,” making clear that “human” or “car” is considered “specific” for purposes of the claims. *Id.*, 5:56-58 (emphasis added). Moreover, the “keyword[s]” suggested for “an image which contains a human” may be categories, such as “family,” “relative,” or “friend,” and need not be a unique person (such as “Jiro”). *Id.*, 6:64-67, 7:48-51. Although the latter “is possible,” it is not required as Patent Owner argues. *Id.*, 7:1-3; POR 6, 19, 29.

Figure 3 illustrates a “display for inputting the human information” when a “*human* is detected” and asks the user to input “*human* information,” which confirms it is sufficient to identify a “human” (or “car” or “face”) as the object of the image for purposes of similarity, and the device need not identify the unique human object (e.g., “Jiro”). Ex. 1001, 9:7-13 (emphases added), FIG. 3.

FIG. 3



Id., FIG. 3 (annotated).

Figure 4 reinforces this, illustrating “a first example for a method for proposing human information,” whereby various keywords, all of which are related to a “human,” but not necessarily a *unique* human, are suitable. *Id.*, 9:30-40, FIG. 4. The keywords “family” and “friend,” for example, each relate to a “human” being detected but do not correspond to a particular family member or friend. *Id.*, 9:32-34. The fact that both keywords are proposed simultaneously confirms that the “human” detected need not be uniquely identified (e.g., “Jiro”) because then one or the other keyword would not apply. Thus, detecting a “human” is sufficient.

FIG. 4



Id., FIG. 4 (annotated).

Patent Owner’s citations do not require otherwise. Patent Owner’s cites 4:22-24, but this passage merely refers to “a specific object,” which, as explained above, may be a “human” or “car,” and never requires the unique object identification Patent Owner argues. *See* POR 15; Ex. 1001, 4:7-10, 4:22-24. Although Patent Owner’s citation to 4:51-53 refers to “a specific person,” that passage relates to “similar face” detection as recited in **claim 2** and explained above. *Compare* Ex. 1001, 4:40-47; POR 15, *with* Ex. 1001, claim 2. Finally, Patent Owner’s citation to 9:18-20 does not demonstrate that ***all*** embodiments require detecting a “very similar ... face”—let alone that claim 1 requires as much, especially when read in light of claim 2. POR 16.

Patent Owner’s description of a “a two-step process” where the “first described step ... detects a ***general*** type of object, such as a human face,” appears to acknowledge this. POR 16. This is the step recited in independent claim 1. Patent Owner’s alleged “***second step*** where the detected human face is compared to determine whether a similar (*i.e.*, specific or ‘very similar’) human face,” POR

17 (emphasis added), at best corresponds to claim 2’s “face image similarity determining section,” which Patent Owner also acknowledges. Ex. 1001, 13:62-65; POR 20. Patent Owner’s reliance on Wakayama’s disclosure² (Ex. 2003; *see* Ex. 1001, 11:29-41) to argue otherwise is misplaced. POR 17. Wakayama’s similarity determination process (which is not incorporated by reference) is merely exemplary and not required by any claim’s limitations. Patent Owner’s argument that “the second step would be unnecessary if ‘generic’ similarity was all that was required,” POR 17-18, is inapposite because claim 2 recites this alleged second step.

Patent Owner’s reliance on Figure 6 and its corresponding disclosure does not salvage its construction. POR 18-19. Figure 6 illustrates exemplary keywords “stored in the database” *after* keywords are selected by the user. Ex. 1001, 9:47-54. But the *proposed* keywords based on object detection are shown in, e.g., Figure 3 and include broader categories, such as “family” and “friend.” Ex. 1001, 9:30-40, FIGS. 3-4. Nothing in Figure 6’s discussion requires detecting “Jiro” specifically or requires proposing the keyword “Jiro” when a human is detected. Patent

² Patent Owner has not met its burden to establish that Wakayama discloses the alleged material because the translation (Ex. 2004) was not certified by someone capable of verifying the accuracy of the translation. Ex. 1016, 18:2-21:1; Paper 18.

Owner's remaining specification-related arguments, POR 15-19, merely repeat the positions articulated above and fail for the same reason.

C. Patent Owner's Construction Improperly Narrows the Claims to One Example

The '807 patent, contrary to Patent Owner's assertions, does not require that "similar" or "specific" objects exhibit any particular degree of similarity beyond being, e.g., "a human" or "a car" to facilitate image classification and keyword proposing:

[A] *specific object (such as a human or a car)* in the newly inputted image is acknowledged (detected) in the object acknowledging step. In addition, *if a specific object is detected* in the object acknowledging step, *the keywords which relate to the object* are proposed to the user in the keyword proposing step. ... By doing this, *the object in the inputted image is detected* in the retrieving/classifying device for the image; thus, it is possible to add the keywords to the image efficiently. Also, *the keywords which relate to the object in the image* are added;

Ex. 1001, 5:54-6:3 (emphases added).

Contrary to Patent Owner's labelling of "human[s]" and "cars" as "*general* type[s] of object[s]," *see* POR 16, the '807 patent discloses that these are "specific" objects to be used for proposing keywords. *E.g.*, Ex. 1001, 5:56-58.

Patent Owner attempts to circumvent the '807 patent's disclosure by arguing³ that it would have been “highly inefficient” to determine image similarity using so-called “generic”⁴ objects because it would allegedly require the user “to manually add and/or sort through keyword information for potentially hundreds or thousands of persons to determine which specific keywords should be added to the newly input picture.” POR 17-18. But neither the specification nor claims require a particular degree of similarity or efficiency to comport with the objective of efficiently “adding keywords.” Ex. 1001, 1:16-22. To the contrary, providing keywords for a “human” improves efficiency by omitting non-human-related keywords.

³ Patent Owner's extrinsic conclusory testimony of Dr. Papanikolopoulos cannot override the intrinsic record. *Sequoia Tech., LLC v. Dell, Inc.*, 66 F.4th 1317, 1325 (Fed. Cir. 2023) (“[A] court should discount any expert testimony ‘that is clearly at odds with the claim construction mandated by ... the written record of the patent.’”); *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1328 (Fed. Cir. 2008).

⁴ Only Patent Owner refers to “human” or “face” as “generic.” *See* POR 15-17. The '807 patent expressly identifies “human” and “car” as “specific” objects. *See* Ex. 1001, 5:56-58.

The '807 patent also explains that user feedback (that Patent Owner styles as “inefficient”) is desirable “for confirming, adding, and correcting” such keywords:

[T]he object information inputting section serves as a personal information inputting section for confirming, adding, and correcting a [sic] personal information. In such a structure, *an object* which is supposed to be acknowledged (*detected*) *is a human* such that the keyword (*human information*) is confirmed for the detected human and the keyword is inputted for the human *if a human is detected* in the image.

By doing this, the human in the inputted image is detected and the keywords (human information) which relate to the human in the image is [sic] added; thus, it is possible to add the keywords accurately.

Id., 4:55-67 (emphases added).

The claims also recite user feedback “for confirming by the user, adding, and correcting the keyword which is proposed by the keyword proposing section when the inputted object acknowledged by the object acknowledging section is similar to the object of the image previously contained in the database.” *Id.*, 13:49-54 (element [1e]). Patent Owner’s hyperbolic speculation that the user may have to “manually add and/or sort through keyword information for potentially hundreds or thousands of persons to determine which specific keywords should be added,” POR 17-18, cannot rewrite the '807 patent’s disclosure or claims. Patent Owner’s only basis for purportedly narrowing keywords—facial comparisons—is, at most,

recited in dependent claim 2, as explained above.⁵ Regardless, similarity detection (even so-called “generic” similarity) would reduce the number of keywords presented to the user related to a particular object (e.g., human). This makes keyword entry more efficient because keywords related to a human are proposed, but keywords related to other objects, such as dogs, cats, cars, and other non-identified objects, are omitted.

Furthermore, because “it is possible to add keywords to the image efficiently by detecting an object (for example, a human) in the image during retrieving and classifying the image,” the ’807 patent confirms that Patent Owner’s so-called “generic” similarity (e.g., detecting “a human”) makes it “possible” to achieve the ’807 patent’s goals. Ex. 1001, 1:16-22.

D. Patent Owner’s Construction Would Make the Claims Ambiguous

Patent Owner’s construction also fails because it introduces multiple ambiguities into the claims. First, it would rewrite “similar” to mean “sufficiently similar” without explaining what “sufficiently” means. Second, it requires “identify[ing] the specific object” without explaining what level of “identification”

⁵ The POR does not challenge the Petition’s showing that Stubler discloses or renders obvious claim 2. *See infra* §§ III.A-III.B.

is sufficient. Such vagaries, not described in the claims or specification, would make the claim indefinite.

Claims must “inform those skilled in the art about the scope of the invention with reasonable certainty” to meet the definiteness requirement of 35 U.S.C. § 112. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910-11 (2014). Terms of degree, like Patent Owner adds, fail for indefiniteness unless the specification “provide[s] objective boundaries for those of skill in the art.” *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370-71 (Fed. Cir. 2014). No such boundaries exist for Patent Owner’s construction, making it improper.

None of “sufficiently similar,” “sufficient,” or “sufficiently” appears in the ’807 patent or claims. Neither does “identify” or any of its derivatives. As such, there is no basis for a POSITA to understand that “similar” should be modified by “sufficiently” or require “sufficient[.]” “identification” under Patent Owner’s construction, nor would a POSITA be able to determine a level of “sufficiently” or “identification” objectively from the specification, as the law requires.

Patent Owner’s descriptor “to identify the specific object of the image previously contained in the database” also does not clarify the scope of “sufficiently similar.” POR 14-21. As explained above, the ’807 patent describes a “specific object” as a “human” or “car.” A simple example shows the ambiguity Patent Owner seeks to inject. In the context of cars, for example, if the database

stores images of a blue sedan and a grey sports utility vehicle, would a newly inputted image of a blue sports utility vehicle be “sufficiently similar” to either image under Patent Owner’s construction? What about a blue sports car? Or a black or white sports utility vehicle? What about a purple sedan? If the blue sedan is a Honda Accord in the database, is a blue Subaru sedan “sufficiently similar”? Must the “identification” be exactly a blue Honda Accord, or can it be a blue Honda Civic? Must it be the blue Honda Accord with the license plate 1ABC234? Similarly, for “a human,” would a stored image of a woman be “sufficiently similar” to a newly inputted image of the same woman’s sister? What about her mother or daughter? Is it “sufficiently similar” that the two women shown have the same skin tone, skin color, hair color, or a combination of these? The ’807 patent does not say and Patent Owner’s construction can only breed mischief; it cannot be a proper construction.

Thus, the Board should reject Patent Owner’s construction.

E. Patent Owner’s Implicit Constructions of “Object of the Image” Also Fail

Patent Owner also implicitly attempts to construe “object of the image” (recited in [1preamble]) and [1a]) by incorporating its incorrect construction of “similar to the object of the image ...” by arguing that “‘an object of the image’ must be usable to determine whether an object in an acquired image is ‘similar to the object of the image previously contained in the database,’ *as a POSITA would*

understand that phrase, namely, ‘*sufficiently similar* to identify the specific object of the image previously contained in the database.’” POR 33 (emphases added). This characterization, whether treated as an implied or express construction, should be rejected for the reasons articulated in Sections II.A-II.D.

Patent Owner’s related argument that Stubler’s “region metadata” is not an “object of the image” because it is not “usable to determine whether the image to be classified includes an object that is ‘similar to the object of the image previously contained in the database,’ as a POSITA would understand that phrase,” POR 33-41, likewise fails because it is based on the same incorrect construction.

III. STUBLER ANTICIPATES OR RENDERS OBVIOUS THE DISPUTED LIMITATIONS

A. Patent Owner’s Merits Arguments Are Premised on Its Incorrect Construction

Patent Owner’s arguments that the Petition “fails to demonstrate that any claim is unpatentable under Ground 1” should be rejected because they rely solely on Patent Owner’s incorrect construction of “similar to the object of the image previously contained in the database” (and implicit construction of “an object of the image”). *See* POR 27-30 (“Stubler does not disclose storing an image to be classified together with a keyword and ‘an object [of the image] previously contained in the database’ ..., *as a POSITA would understand that phrase.*” (emphasis added)). Other than arguing its incorrect construction, Patent Owner

does not refute the Petition’s showing that Stubler anticipates or renders obvious claims 1-14 of the ’807 patent, Paper 1 (“Pet.”), 5-59, or that Stubler and Wang render obvious claims 2-5 and 9-12, Pet. 59-73.

1. Patent Owner’s argument related to the “image storing section” relies solely on its improper construction and therefore fails

Patent Owner argues that Stubler’s “region metadata” does not disclose the claimed “object of the image” because it “lack[s] sufficient information to determine whether a region in one image is *sufficiently similar* to region [sic] in another image to identify the *specific* objects in the region” and “lacks the necessary information to identify *specific* objects across images (such as determining that two images both contain the photographer’s eldest brother, ‘Jiro’).” POR 28-29 (first emphasis added); POR 31-32 (relying on “Jiro” example), 37-41 (arguing Stubler’s region metadata is not an “object” because it “lacks sufficient information to determine whether a newly acquired image is ‘*sufficiently similar to identify the specific object* of the image previously contained in the database.’” (emphasis added)). All of these arguments, however, rely on Patent Owner’s faulty construction. *See* POR 28-29, 31-32, 37-41.

As explained in Sections II.A-II.E, neither the claims nor the specification requires an “object” detected in the image be “sufficiently similar” to “identify”

unique objects, e.g., “Jiro.” And, the Board has also already rejected Patent

Owner’s argument:

Claim 1 merely recites generic similarity as follows:
“when the inputted object ... is similar to the object of the
image previously contained in the database.” For this
reason, we are not persuaded by Patent Owner’s argument
that Stubler’s regional metadata does not disclose “an
object of an image.”

DI 15 (citation omitted).

As explained above, the ’807 patent discloses that a “specific object” can be
a “human” or “car.” *E.g.*, Ex. 1001, 3:21-27, 4:59-63, 5:56-58; *supra* §§ II.B-II.C.
Patent Owner cannot refute Stubler’s teaching that it “measur[es] *similarities*
between the images” to propose labels and captions based on the “similarities.” *See*
Ex. 1005 (“Stubler”), [0009], [0011]-[0012], [0031], [0034]-[0035], [0039]-[0041].
Indeed, Patent Owner acknowledges that Stubler can “identify high-level, generic
similarity (*such as determining that two regions both generally contain images of*
human beings).” POR 28-29 (emphasis added). Patent Owner argues instead that
Stubler “lacks the necessary information to identify *specific* objects across images
(such as ... ‘Jiro’).” POR 29. But this fails; first, because it relies on Patent
Owner’s incorrect construction, discussed above; and second, because the Petition
shows that Stubler *does* perform a “determination of facial similarity” using

“known algorithms,” such as Eigenfaces disclosed by Turk, among others. Pet. 39-43 (citing Turk (Ex. 1010); Sung (Ex. 1007); Luo (Ex. 1008)), 63-67 (discussing Wang (Ex. 1006)).

Stubler thus discloses an “object of the image,” as recited in claim 1 and corroborated by the disclosures of the ’807 patent and Patent Owner’s acknowledgement (*see* POR 28-29).

2. Patent Owner’s “Region Metadata” Arguments Fail

Like Patent Owner’s Preliminary Response, the POR argues that Stubler’s “region metadata” does not disclose “the object of the image itself or a representation thereof” because it is allegedly “high-level, textual descriptions of generic features within a region of an image.” POR 33-37. The Board rejected this same argument at institution:

We do not agree with Patent Owner’s arguments because they are not commensurate in scope with the limitations of claim 1. Patent Owner’s arguments are premised on an “object of an image” as interpreted by Patent Owner as including “a representation of the object”^[6] must further be an accurate representation of extracted characteristics of the object which allow the system to identify

⁶ The POR maintains that a “representation of the object” is sufficient. *See* POR 30, 34, 35, 36.

similarities of the extracted characteristics across multiple images. Claim 1 does not recite or require Patent Owner's specific proposed added limitations.

DI 15-16.

The POR does not advance any new arguments to rebut the Board's prior findings and Patent Owner's positions should be rejected again. For example, Patent Owner argues that the incorporated Sung and Yang references do not disclose the claimed "object" of the image because they allegedly do not detect "the object itself." *E.g.*, POR 34-35 (Sung "simply generates the location and size of an object (in this case, a face), but ... not the object"), 35-36 ("Yang simply generates color information that can be used to detect the presence or location of a face and track motion of that face across images"). Patent Owner's alleged distinctions are inconsequential, however, because the '807 patent explains (and Patent Owner confirms) that "objects" may be a representation of the object, like those disclosed in Sung and Yang. Ex. 1001, 6:47-8:9, 8:25-28 (describing detecting objects using "patterns for the face images [that] are stored in advance" or performing a "frequency analysis ... for the image pattern"), 11:35-38, 11:59-67; *id.*, 2:22-33 (describing "extract[ing] characteristics of the face area ... as a written datum" and "face area mosaic characteristics datum" as "object[s]" of the image); POR 30; *see also* DI 18 ("Patent Owner concedes that the scope of 'an object of the image' is not limited to the object itself but includes 'a representation

of the object.”). Furthermore, Patent Owner acknowledges Sung and Yang (incorporated into Stubler) are “similar” to at least the ’807 patent’s “face image detecting section” and “face color area detecting section” in Figure 2 (items 112/113), because each discloses “detecting a face image or a face color area.” POR 36. And Patent Owner also does not dispute that Stubler discloses using “known algorithms,” such as “Eigenfaces,” to determine or recognize “facial similarity” using the region metadata.⁷ Stubler, [0034]. Thus, contrary to Patent

⁷ Patent Owner disputes only whether Turk is incorporated by reference. POR 23 n.4. Stubler, however, identifies Turk’s “Eigenfaces” as one exemplary “known algorithm[]” to determine “facial similarity.” Stubler, [0034]. Because this is an example known algorithm to compare facial similarity, Turk need not be incorporated by reference because none of Turk’s express steps are required to meet the claim language. *See Sherwin-Williams Co. v. PPG Indus., Inc.*, 2024 WL 3534113, at *3 (Fed. Cir. July 25, 2024) (affirming anticipation finding where prior art referred to, but did not incorporate by reference, other publication as example). Claim 2 (but not claim 1) recites “a face image similarity determining section for detecting a face image ... so as to detect a similar face image stored in the database.” Ex. 1001, 13:62-65. No particular algorithm or method is recited. Stubler discloses this, explaining that “region metadata ... may need to be

Owner's arguments, Stubler's "region metadata" does disclose "an object of the image" as recited in claim 1.

Patent Owner's other arguments are easily dismissed. Patent Owner incorrectly argues that "Stubler's region metadata is simply a *textual description* of a feature," POR 33-34, but the '807 patent states that the "object" may be represented as "written datum." Ex. 1001, 2:22-27. And, even if some region metadata were "textual," Stubler discloses detecting non-textual region metadata, such as "skin color in a chromatic space [detected] utilizing histogram analysis," "color feature-based representation[s] of an image," "perceptually significant[]," "texture feature-based representation[s] of an image," "facial similarity" using "Eigenfaces for Recognition," and building an "image representation" or "color representation." Stubler, [0011], [0022], [0030], [0032]-[0034], [0037]. These are similar to the '807 patent's own "representations," such as "detecting [a] face color area" and "patterns for the face images." *E.g.*, Ex. 1001, 8:1-5, 8:14-20, 8:25-35, 8:39-41.

Patent Owner's disagreements with Sung, Yang, and Luo, POR 34-37, do not refute Stubler's showing. Patent Owner acknowledges that each of these

processed for similarity by known algorithms" and "an example" includes "determination of facial similarity ... described in [Turk]." Stubler, [0034].

references detects an object, such as a face, based on at least representation information of the face (object) in the image. *E.g.*, POR 34-35 (Sung discloses detecting faces), 35-36 (Yang discloses “chromatic color space” data that is “used to detect or locate ... the presence of a face,” including based on “a skin color model”), 36-37 (Luo identifies or represents an object based on its location). Patent Owner also argues that Yang does not disclose storing data, POR 36, but the Petition relies on *Stubler’s* disclosure of storing and comparing data, such as Yang’s. Thus, Patent Owner’s argument here is not relevant because it attacks the reference individually and not as argued in the Petition.

Patent Owner’s final arguments that “Stubler’s region metadata is not an ‘object of the image’ because region metadata ... is not usable to determine similarity between an image to be classified and an object previously contained in the database” because, according to Patent Owner, it would not be usable to determine a “*specific*” object or face, POR 37-41, relies solely on Patent Owner’s improper construction. First, Patent Owner does not dispute that Stubler detects object “similarity” at a level higher than a unique person (e.g., it detects humans based or cars based on similarity as being humans or cars). Second, Patent Owner ignores that Stubler discloses detecting “facial similarity” through any number of “known algorithms,” of which Turk’s “Eigenfaces” is merely one example. Stubler, [0034]. Third, Patent Owner does not dispute the Petition’s showings

related to *claim 2*, which are the very steps that Patent Owner seeks to improperly incorporate into claim 1. By not refuting claim 2, Patent Owner tacitly acknowledges these are taught or rendered obvious by Stubler, and thus that Patent Owner's construction is met by Stubler. *See* Paper 10, at 9 (arguments not made in POR are waived).

Patent Owner's remaining arguments at POR 41-42 are duplicative of its prior arguments and fail for the same reasons discussed above. Patent Owner's alternative argument that Stubler does not disclose the claimed "object" because "claim 1 determines whether the inputted object and the previously stored object *are the same* by comparing them," POR 42 (emphasis added), also fails because it is divorced from the claim language. Indeed, the term "same" does not appear in any claim. *See* Ex. 1001, 13:32-16:7.

B. Even if Patent Owner's Construction Is Adopted, Stubler Anticipates or Renders Obvious the Challenged Claims

Notwithstanding the incorrectness of Patent Owner's construction, Stubler discloses or renders obvious the "image storing section" and "object information inputting section" under Patent Owner's construction because Stubler's region metadata (claimed "object of the image," Pet. 15-21, 32-38) is usable to determine whether an object in an acquired image is sufficiently similar to identify the specific object of the image previously contained in the database.

The Petition establishes that Stubler’s region features or region metadata “are *extracted* (236) in order to build *a region representation*” of, for example, a “face” or other object of an image. Stubler, [0030], [0038] (emphases added), FIG. 4; Ex. 1003 (“Stevenson”) ¶131. This “representation” of, e.g., a face is stored in Stubler’s database and later used to “determin[e] ... facial similarity” between a later-acquired image and the stored regional features/metadata, like the ’807 patent. Stubler, [0034], [0037], [0040]; Stevenson ¶¶81-82, 116-118, 170-173. Stubler explains that “[i]f *similarities are found (130) between the acquired images and the database images*, then the preexisting captions or semantic labels from the matched clusters and groups in the database are extended (140) to the acquired images.” Stubler, [0035] (emphasis added); *see* Pet. 10-12; Stevenson ¶71. Stubler further discloses “generating captions or semantic labels for an acquired image ... *based upon similarity* between the acquired image and one or more stored images that are maintained in an image database environment.” Stubler, [0009], [0040] (“If captioning or semantic labeling of the acquired images based on region metadata is desired (256 [in FIG. 5]), the database is searched (258 [in FIG. 5]) for any images with region metadata (e.g., face, sky, grass, skin, open space, etc.) *similar to that of the acquired images*, and repeated as needed (260 [in FIG. 5]) *for similar regions* until all images are analyzed.” (emphases added)), claim 25 (“A method of assigning one or more captions or labels to acquired

images *based upon their similarity*” (emphasis added)); Pet. 20-21, 32-33; Stevenson ¶¶81, 100.

Moreover, as explained in Section III.A.2, Stubler determines similarity using “known algorithms,” such as known “determination of facial similarity” algorithms (e.g., Turk), “representing skin color in a chromatic space utilizing histogram analysis,” “color feature-based representation[s] of an image,” “perceptually significant[,]” “texture feature-based representation[s] of an image,” and building an “image representation” or “color representation,” similar to the ’807 patent’s disclosures. Stubler, [0011], [0022], [0030], [0032]-[0034], [0037].

Thus, Stubler discloses that its extracted region metadata is usable to determine whether an object (such as a face) in an acquired image is sufficiently similar to identify a visually similar face previously stored in the database (the specific object of the image previously contained in the database). Stubler, [0009], [0011], [0022], [0030], [0033]-[0035], [0040], claim 25, FIG. 2. Patent Owner’s argument that there is “no explanation as to *how* similar images are located, *how* similarity is calculated or determined, or *what* even constitutes ‘similarity,’” POR

40-41,⁸ is contrary to Stubler’s disclosures (e.g., identifying “facial similarity” algorithms, Stubler, [0034]) and should be rejected.

C. Independent Claims 7 and 8 Are Unpatentable

Patent Owner’s arguments for independent claims 7 and 8 rely on its incorrect arguments discussed for claim 1, and fail for the reasons discussed above. POR 42-43. Once these arguments are rejected, Patent Owner has no defense for independent claims 7 and 8. Independent claims 7 and 8 are therefore unpatentable for the reasons explained above and in the Petition. *See* Pet. 53-57.

D. Dependent Claims 2-6 and 9-14 Are Unpatentable

Patent Owner’s arguments related to dependent claims 2-6 and 9-14 rely on its incorrect arguments discussed for claim 1, and fail for the reasons explained above. POR 43. Once these arguments are rejected, Patent Owner has no defense for dependent claims 2-6 and 9-14. Dependent claims 2-6 and 9-14 are therefore unpatentable for the reasons explained above and in the Petition. *See* Pet. 39-53, 57-59.

E. Claims 2-4 and 9-12 Are Unpatentable Under Ground 2

Patent Owner’s arguments related to Ground 2 (dependent claims 2-4 and 9-12) rely on its incorrect arguments discussed for claim 1, and fail for the reasons

⁸ The ’807 patent does not require a specific level of “similarity” and Patent Owner’s construction does not provide any threshold. *Supra* § II.

discussed above. POR 44. Once these arguments are rejected, Patent Owner has no defense for dependent claims 2-4 and 9-12. Dependent claims 2-4 and 9-12 are therefore unpatentable for the reasons explained above and in the Petition. *See* Pet. 59-73.

IV. CONCLUSION

For the reasons shown in the Petition and provided above, all challenged claims are unpatentable and should be canceled.

Date: July 14, 2025

Respectfully Submitted,

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CERTIFICATION OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24, Petitioner certifies that the word count of
Petitioner's Reply (exclusive of any table of contents, table of authorities,
mandatory notices under § 42.8, certificates of service and word count, and list of
exhibits or claim listing) as measured by Microsoft Word is 5,543.

Dated: July 14, 2025

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CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the foregoing **Petitioner's Reply to Patent Owner's Response** was served on July 14, 2025, via email directed to counsel of record for the Patent Owner at the following:

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