

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner,

v.

AUTONOMOUS DEVICES, LLC,
Patent Owner.

IPR2023-01055
Patent 11,238,344 B1

Before BARBARA A. PARVIS, ROBERT J. WEINSCHENK, and
RUSSELL E. CASS, *Administrative Patent Judges*.

PARVIS, *Administrative Patent Judge*.

PRELIMINARY GUIDANCE
PATENT OWNER'S MOTION TO AMEND

I. INTRODUCTION

On December 13, 2023, we instituted trial as to claims 3–18¹ of U.S. Patent No. 11,238,344 B1 (“the ’344 patent,” Ex. 1001). Paper 20 (“Inst. Dec.”). After institution, Patent Owner filed a Motion to Amend (Paper 28 (“Mot.”)) presenting proposed substitute claims 23, 24, and 26–29 on a *contingent* basis, and proposed substitute claims 21, 22, and 25 on a *non-contingent* basis. Mot. 1, 24. In particular, Patent Owner’s Motion to Amend requests “[i]n the event the Board finds any of original claims 6, 7, 10, 11, 12, or 16 unpatentable . . . the Board grant this motion to amend and issue the corresponding substitute claims [among 23, 24, 26, 27, 28, and 29].” Mot. 1. The Motion to Amend also submits that “[c]laims 4, 5, and 9 are hereby cancelled” and requests that “the Board issue claims 21, 22, and 25 as substitutes for claims 4, 5, and 9, respectively,” noting that “[Patent Owner] does not condition its request regarding claims 21, 22, and 25 on any condition.”² *Id.* at 1, 24. Patent Owner submitted a Declaration of Eli Saber, Ph.D. (Ex. 2007) in support of the Motion. Petitioner filed an opposition on May 30, 2024. Paper 31 (“Opp.”). Petitioner submitted a second Declaration of Jason Janet, Ph.D. (Ex. 1010) in support of the Opposition.

¹ Patent Owner previously disclaimed claims 1, 2, 19, and 20 of the ’344 patent. *See* Paper 11, 1 (citing Ex. 2004; 37 C.F.R. § 42.107(e)).

² We note that Patent Owner’s “APPENDIX A – SUBSTITUTE CLAIMS” attached to the Motion to Amend lists “Claim 21 (Proposed substitute for claim 4, *if found unpatentable*),” “Claim 22 (Proposed substitute for claim 5, *if found unpatentable*),” and “Claim 25 (Proposed substitute for claim 9, *if found unpatentable*).” *See* Mot. App. A 1–12 (Substitute Claims Listing) (emphases added). We treat the aforementioned “if found unpatentable” language with respect to claims 4, 5, and 9 as a harmless, typographical error.

In the Motion, Patent Owner requested that we provide preliminary guidance concerning the Motion in accordance with the Board’s pilot program concerning motion to amend practice and procedures. Mot. 1; *see also* Notice Regarding a New Pilot Program Concerning Motion to Amend Practice and Procedures in Trial Proceedings under the America Invents Act before the Patent Trial and Appeal Board, 84 Fed. Reg. 9,497 (Mar. 15, 2019) (providing a patent owner with the option to receive preliminary guidance from the Board on its motion to amend) (“Notice”). We have considered Patent Owner’s Motion and Petitioner’s Opposition.

In this Preliminary Guidance, we provide information indicating our initial, preliminary, non-binding views on whether Patent Owner has shown a reasonable likelihood that it has satisfied the statutory and regulatory requirements associated with filing a motion to amend in an *inter partes* review and whether Petitioner (or the record) establishes a reasonable likelihood that the substitute claims are unpatentable. *See* Notice, 84 Fed. Reg. at 9,497 (“The preliminary guidance . . . provides preliminary, non-binding guidance from the Board to the parties about the [motion to amend]”); *see also* 35 U.S.C. § 316(d) (statutory requirements for a motion to amend); 37 C.F.R. § 42.121 (regulatory requirements and burdens for a motion to amend); *Lectrosonics, Inc. v Zaxcom, Inc.*, IPR2018-01129, Paper 15 (PTAB Feb. 25, 2019) (precedential) (providing information and guidance regarding motions to amend).

For purposes of this Preliminary Guidance, we focus on the proposed substitute claims, and specifically on the amendments proposed in the Motion. *See* Notice, 84 Fed. Reg. at 9,497. We do not address the patentability of the originally challenged claims. *Id.* Moreover, in

formulating our preliminary views on the Motion and Opposition, we have not considered the parties' other substantive papers on the underlying merits of Petitioner's challenges. We emphasize that the views expressed in this Preliminary Guidance are subject to change upon consideration of the complete record, including any revision to the Motion filed by Patent Owner. Thus, this Preliminary Guidance is not binding on the Board when rendering a final written decision. *See id.* at 9,500.

II. PRELIMINARY GUIDANCE

A. Statutory and Regulatory Requirements

For the reasons discussed below, at this stage of the proceeding, and based on the current record, it appears that Patent Owner has shown a reasonable likelihood that it has satisfied the statutory and regulatory requirements associated with filing a motion to amend with respect to proposed substitute claims 21–29.

1. Reasonable Number of Substitute Claims

Does Patent Owner propose a reasonable number of substitute claims? (35 U.S.C. § 316(d)(1)(B))
Yes. Patent Owner proposes no more than 1 substitute claim for each of challenged claims 4–7, 9–12, and 16. Mot. 1–2, App. A 1–26 (Substitute Claims Listing). Petitioner does not argue otherwise. <i>See generally</i> Opp.

2. Respond to Ground of Unpatentability

Does the Motion respond to a ground of unpatentability involved in the trial? (37 C.F.R. § 42.121(a)(2)(i))
Yes. Patent Owner responds to the grounds of unpatentability on which we instituted trial. Mot. 3, 19–23. Upon review of Patent Owner's arguments,

we agree that proposed substitute dependent claims 21–29 recite new limitations, and new combinations of limitations, that directly respond to the grounds of unpatentability involved in the trial. *See* Mot. 3, 19–23, App. A 1–26 (Substitute Claims Listing). Petitioner does not argue otherwise. *See generally* Opp.

3. Scope of Amended Claims

Does the amendment seek to enlarge the scope of the claims? (35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii))

No.

Proposed substitute claims 21–29 (i) retain all limitations of their original corresponding claims 4–7, 9–12, and 16 (including the original dependent and independent claims from which claims 4–7, 9–12, and 16 depend), and (ii) further include additional limitations as compared to respective claims 4–7, 9–12, and 16. *See* Mot. 3–4, App. A 1–26 (Substitute Claims Listing). Therefore, proposed substitute claims 21–29 do not enlarge the scope of the claims of the challenged patent. *See* Mot. 3–4. Petitioner does not argue otherwise. *See generally* Opp.

4. New Matter

Does the amendment seek to add new subject matter? (35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii))

No.

On this record, Patent Owner appears to have identified adequate written description support for proposed substitute claims 21–29. *See* Mot. 4–17. Petitioner does not argue otherwise. *See generally* Opp.

Thus, at this stage of the proceeding, on the record before us, Patent Owner has shown a reasonable likelihood that there is adequate written description support in the original disclosure of the '344 patent for proposed substitute claims 21–29.

B. Patentability

For the reasons discussed below, at this stage of the proceeding, and based on the current record,³ it appears that Petitioner (or the record) has not shown a reasonable likelihood that proposed substitute claims 21–29 are unpatentable.

Does the record establish a reasonable likelihood that the proposed substitute claims are unpatentable?

I. Obviousness

No, on the current record, it appears that Petitioner has not established a reasonable likelihood that proposed substitute claims 21–29 are unpatentable under 35 U.S.C. § 103 as obvious over the combination of Grotmol and Hickman.⁴
--

No, on the current record, it appears that Petitioner has not established a reasonable likelihood that proposed substitute claims 21, 22, 24–27, and 29 are unpatentable under 35 U.S.C. § 103 as obvious over the combination of Grotmol and Tolstedt.

Petitioner has asserted unpatentability based on the following grounds: (1) proposed substitute claims 21–29 would have been obvious over Grotmol (Ex. 1004) and Hickman (Ex. 1005); and (2) proposed substitute claims 21, 22, 24–27, and 29 would have been obvious over Grotmol and

³ We express no view on the patentability of original claims 3–18 in this Preliminary Guidance. Instead, we focus on limitations added to the challenged claims in the Patent Owner’s Motion to Amend.

⁴ Petitioner asserts that substitute claims 26 and 27 would have been obvious over “Grotmol, *POSITA* knowledge, and Hickman” and “Grotmol, *POSITA* knowledge, and Tolstedt.” See Opp. 12–13 (emphasis added). We do not include “POSITA knowledge” in our reference to these grounds because we consider the teachings of the prior art as a whole, from the perspective of an ordinarily skilled artisan in our analysis of each obviousness ground, regardless of whether “POSITA knowledge” is set forth in the listing of grounds. See *Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1361 n.3 (Fed. Cir. 2008) (“What a prior art reference discloses or teaches is determined from the perspective of one of ordinary skill in the art.”).

newly cited Tolstedt (Ex. 1015).⁵ Opp. 12–13. For the reasons given below, on this record, it appears that Petitioner has not shown a reasonable likelihood that proposed substitute claims 21–29 are unpatentable as obvious over the combination of Grotmol and Hickman, or that proposed substitute claims 21, 22, 24–27, and 29 are unpatentable as obvious over the combination of Grotmol and Tolstedt.

Proposed Substitute Claim 21 and the Grotmol-Hickman Ground

Petitioner contends that Grotmol teaches or suggests claim element [21.8] and that Hickman teaches or suggests claim elements [21.9]–[21.15]. Opp. 19–24.

We find Petitioner’s contentions and evidence insufficient to demonstrate that Hickman teaches “*processing one or more digital pictures to detect . . . a size of a first object*” recited in claim element [21.10] and “*generating the first data structure that includes . . . a computer model indicating the detected size of the first object*” recited in claim element [2.11].

For claim element [2.10], Petitioner contends

Hickman discloses that a “robot client 118 may collect data via one or more sensors, and upload the data to the cloud computing system 102 via one or more communications interfaces. The cloud computing system 102 may be configured to analyze data received from the robot client 118, and return processed data to the robot client 118.” TESLA1005, 6:60–67, 10:41–56. As part of the analyzing and processing, the system 102 analyzes the data (e.g., image(s)) received from the robot, detects objects in the data through object recognition algorithms, learns about objects detected in the received data, and stores information learnt about the objects in its shared knowledge base 306. TESLA1005, FIG. 3, 11:9–24:64; TESLA1010, ¶88.

Opp. 20.

We find Petitioner’s contentions unpersuasive, based on the current record, because Hickman does not teach or suggest detecting “*a size*” of the first and second objects recited in claim element [2.10]. Instead, Hickman describes that “image data received from the robot” is analyzed

⁵ US 2010/0063663 A1, published March 11, 2010.

“to determine whether the object in the image data received from the robot corresponds to a general object identifier (GID) in the general object knowledgebase 308,” which “corresponds to a particular ‘type’ of object.” Ex. 1005, 17:1–16. Physical attribute data is stored in connection with the GID. *Id.* at 18:4–14 (describing data stored in connection with the GID as including “physical dimensions (height, width, depth, shape, volume, area, etc.)”), 18:15–16 (describing that a “type” of “coffee mug” might have “a height (6 inches)” and “width (4 inches)”). Thus, based on the record before us, we are not persuaded that Hickman’s physical attribute data is detected.

For claim element [2.11], Petitioner contends it would have been obvious to a person of ordinary skill in the art that in the GHC (Grotmol-Hickman combination) system, “when a first object is identified, a data structure corresponding to the first object would have been generated in knowledge base 306 (including a combination of knowledge bases) as part of the ‘the first object representation.’” Opp. 21–22 (citing Ex. 1010 ¶ 90). Petitioner contends that “first object representation” “would have included ‘a first data structure’ that includes the type, location (coordinates), size of the first object, along with a label indicating the detected type of the first object and a computer model.” *Id.* at 22 (citing Ex. 1010 ¶ 90). Petitioner contends that the recitation of “*a computer model indicating the detected size of the first object*” is taught or suggested by the “(combination of Hickman’s [specification data] SPC and [model data] MOD) indicating the detected size of the first object.” *Id.* (citing Ex. 1010 ¶ 90). Petitioner, more specifically, contends

[i]n some cases in which an object is generally identified, the system 102 adds information (e.g., a general object identifier (GID), image data (IMG), model data (MOD), specification data (SPC), and task data (TASK) associated with the object) to a data structure 314 that is part of the General Object Knowledge Base 307. TESLA1005, FIG. 3, 14:61–20:20. “The specification data (SPC) may include physical attributes associated with the particular ‘type’ of object corresponding to the general object identifier (GID)” including “e.g., physical dimensions (height, width, depth, shape, volume, area, etc.).” TESLA1005, 18:4–14. Model data (MOD) may include various data about the object’s model. TESLA1005, 17:20–18:14.

Opp. 21.

We find Petitioner’s contentions unpersuasive, based on the current record, because Hickman does not teach or suggest generating the first data structure that includes an indication of the “*detected size*” recited in claim element [21.11]. Instead, according to Hickman, the physical attribute data is stored in object knowledgebase 308 and sent in response to a query when a determination is made that an object corresponds to a particular type. Ex. 1005, 17:1–33, 18:4–18. More specifically, Hickman describes that image data received in a query is analyzed and if, based on that analysis, a determination is made that an object “corresponds to a general object identifier (GID) in the general object knowledge base 308,” a response to the query is sent including “(i) an identification of the ‘type’ of object and (ii) data corresponding to the ‘type’ of object.” *Id.* at 17:1–19. Hickman describes the model data and specification data are included in the “individual general object identifier (GID) in the conceptual data structure 314 of the general object knowledge base 308.” *Id.* at 17:20–23 (describing that model data is included), 18:4–7 (describing that specification data is included).

We also find Petitioner’s contentions and evidence insufficient to demonstrate that Hickman teaches “*processing one or more digital pictures to detect . . . a size of the second object*” recited in claim element [21.13] and “*generating the second data structure that includes . . . a computer model indicating the detected size of the second object*” recited in claim element [2.14]. For claim elements [2.12]–[2.14], Petitioner contends “[f]or reasons similar to those noted above” the combination of Grotmol and Hickman “renders obvious feature [21.12]–[21.14].” *Id.* at 23. For the reasons given for claim elements [21.10] and [21.11], based on the current record, we find Petitioner’s contentions for claim elements [21.13] and [21.14] unpersuasive.

Thus, based on the current record, Petitioner does not appear to have shown a reasonable likelihood that the combination of Grotmol and Hickman teaches or suggests claim elements [21.10], [2.11], [2.13] and [21.14].

Proposed Substitute Claim 21 and the Grotmol-Tolstedt Ground

Petitioner contends that Grotmol teaches or suggests claim element [21.8] and that Tolstedt teaches or suggests claim elements [21.9]–[21.15]. Opp. 19–24.

We find Petitioner’s contentions and evidence insufficient to demonstrate that Tolstedt teaches “*processing one or more digital pictures to detect . . . a size of a first object*” recited in claim element [21.10] and “*generating the first data structure that includes . . . a computer model indicating the detected size of the first object*” recited in claim element [2.11].

For claim elements [2.10] and [2.11], Petitioner contends

Tolstedt also discloses that sensor data (one or more images) is processed to classify objects detected in the sensor data and identify attributes of the detected objects such as the type, dimensional information, location, height, width, and color of the object, and actions for the vehicle to take in association with the object (e.g., performing object avoidance). TESLA1015, ¶¶83–88. A POSITA would have understood that this information is stored in data fields (which are a type of data structure, as explained in the ’344 patent) in a knowledge base. TESLA1001, 65:55–66:6. *Id.*; TESLA1010, ¶91. Each detected object in image would have its own data structure. TESLA1010, ¶91.

Opp. 22.

We find Petitioner’s contentions unpersuasive, based on the current record, because Tolstedt does not teach or suggest detecting “a size” of the first and second objects recited in claim element [2.10] or generating the first data structure that includes an indication of the “*detected size*” recited in claim element [21.11]. Instead, Tolstedt teaches that sensor processing algorithms classify sensor data and the “classification may include identifying objects that have been detected in the environment.” Ex. 1015 ¶ 83. Tolstedt further teaches “[f]or example, sensor processing algorithms 604 may classify an object as a person, curb, tree, waste container, light pole, driveway, or some other type of object.” *Id.* Tolstedt teaches that “classification may be performed to provide information about objects in the environment” and that “classified objects may include dimensional information” such as “height” and “width.” *Id.* Petitioner, however, does not sufficiently explain how this “dimensional information” for the classified objects is “detected” by “processing one or more digital pictures,” as the claim requires.

We also find Petitioner’s contentions and evidence insufficient to demonstrate that Hickman teaches “*processing one or more digital pictures to detect . . . a size of the second object*” recited in claim element [21.13] and “*generating the second data structure that includes . . . a*

computer model indicating the detected size of the second object” recited in claim element [2.14]. For claim elements [2.12]–[2.14], Petitioner contends “[f]or reasons similar to those noted above” the combination of Grotmol and Tolstedt “renders obvious feature [21.12]–[21.14].” *Id.* at 23. For the reasons given for claim elements [21.10] and [21.11], based on the current record, we find Petitioner’s contentions for claim elements [21.13] and [21.14] unpersuasive.

Thus, based on the current record, Petitioner does not appear to have shown a reasonable likelihood that the combination of Grotmol and Tolstedt teaches or suggests claim elements [21.10], [21.11], [21.13] and [21.14].

Proposed Substitute Claims 22–29

With respect to proposed substitute claims 22–29, for both obviousness grounds, Petitioner merely asserts that “claims 22–29 are rendered obvious for the same reasons noted above as claim 21” because “claims 22–29 were amended to recite the same amended features recited in claim 21.” Opp. 25.

The new limitations added to claims 22–29 (with respect to their corresponding original claims) are similar to the new limitations added into proposed substitute claim 21 discussed *supra*. Thus, for the same reasons discussed above, Petitioner does not appear to have shown a reasonable likelihood that the combination of Grotmol and Hickman or the combination of Grotmol and Tolstedt teach or suggest the first and second data structures recited in proposed substitute claims 22–29.

II. Patent-Ineligibility

No, as to Petitioner’s contention that proposed substitute claims 21–29 are patent-ineligible.

Based on the current record, it appears that Petitioner has not shown a reasonable likelihood that proposed substitute claims 21–29 recited ineligible subject matter.

Petitioner argues that “PO’s substitute claims are directed to an abstract idea of operating a device in a current circumstance based on how that that device, or another device, operated in similar circumstance(s) in the past” which is “a mental process that continues to be performed in the mind by humans in countless contexts each day.” Opp. 2. Petitioner contends the

“substitute claims simply take th[e] basic human intuition [of making real-time driving decisions informed by past driving experiences and basing present actions on past experiences] and apply it in a purportedly computer-implemented method.” *Id.* at 2–3. Petitioner argues this is so because the constituent elements of the substitute claims have a “generic, non-technical character” and encompass operations of “a learning process,” “accessing or receiving data that is merely limited by its content,” and “basic . . . processing” of that data—which are “capable of performance in the mind” and in fact “can be carried out in the mind.” *Id.* at 3–5 (citing *Elec. Power Grp., LLC v. Alstom, S.A.*, 830 F.3d 1350, 1353–54 (Fed. Cir. 2016)).

Based on the current record, Petitioner’s arguments are unpersuasive because Petitioner does not address that the claimed circumstance representations and instruction sets are employed by a computerized system/processor to make autonomous decisions about a device’s circumstances and enable the device to autonomously perform operations that match those circumstances. *See App. A 1–26* (Substitute Claims Listing). That is, proposed substitute claims 21–29 recite systems and processors that exist—and perform operations that exist— exclusively in the realm of computers and control systems, and cannot practicably be performed in the human mind or with pen and paper, and thus do not amount to a mental process.

For example, the system recited in proposed substitute claim 21 is programmed for “anticipating the first one or more instruction sets . . . based on at least a partial match” between a “second circumstance representation” and a “first circumstance representation” with each circumstance representation representing a circumstance “detected at least in part by one or more sensors” of a device and “executing the first one or more instruction sets for operating the first device” where a device “autonomously performs one or more operations defined by the first one or more instruction sets.” *See App. A 1–3* (Substitute Claims Listing). Proposed substitute claim 21 also recites object representations of the “first circumstance representation” and “second representation” that each include a “data structure” having “a label indicating the detected type of the first object, a coordinate indicating the detected location of the first object, and a computer model indicating the detected size of the first object,” which is generated by processing “one or more digital pictures.” *Id.* Proposed substitute claim 21 further requires that the first and second

data structures “are correlated with the first one or more instruction sets for operating the first device.” *Id.* Claims 22–29 recite similar limitations. *Id.* at 3–26. Thus, the proposed substitute claims appear to be directed to a non-abstract improvement in artificially intelligent computer-implemented operations that enable autonomous device operation responsive to device-specific environmental conditions.

Based on the current record, we are also not persuaded by Petitioner’s arguments that the substitute claims “fail to integrate the abstract idea into a practical application” and that the “limitations added by amendment” are “inconsequential and do not change that the substitute claims are directed to an abstract idea.” *See* Opp. 6–8 (citing Ex. 1010 ¶¶ 69–72). We find Petitioner’s arguments (and the relied upon declaration testimony at paragraphs 69–72 in Exhibit 1010) conclusory, as they ignore or oversimplify the limitations recited in the substitute claims, including the limitations discussed above. Thus, even if the proposed substitute claims were considered to recite some abstract idea, the proposed substitute claims appear to integrate an abstract idea into a practical application.

In conclusion, based on the current record, it appears that Petitioner has not shown a reasonable likelihood that proposed substitute claims 21–29 recited ineligible subject matter.

III. CONCLUSION

This concludes the Preliminary Guidance, which is Patent Owner’s first option under the Board’s pilot program. Notice, 84 Fed. Reg. at 9,497. Patent Owner has an additional option under the Board’s pilot program to file a revised MTA by DUE DATE 3. *See* Scheduling Order.

In addition to those two options under the Board’s pilot program, Patent Owner is reminded that amendments of the challenged claims may also be pursued in a separate reissue or reexamination proceeding before, during, or after an AIA trial proceeding, including subsequent to the issuance of the Final Written Decision. We draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner*

IPR2023-01055
Patent 11,238,344 B1

Through Reissue or Reexamination During a Pending AIA Trial Proceeding.
See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

IPR2023-01055
Patent 11,238,344 B1

FOR PETITIONER:

W. Karl Renner
Nicholas Stephens
Usman Khan
Matthew Colvin
FISH & RICHARDSON P.C.
axf-ptab@fr.com
nstephens@fr.com
khan@fr.com
colvin@fr.com

FOR PATENT OWNER:

Arvind Jairam
Christina Ondrick
John Holley
George Fishback
MCKOOL SMITH, P.C.
ajairam@mckoolsmith.com
condrick@mckoolsmith.com
jholley@mckoolsmith.com
gfishback@mckoolsmith.com