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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARTIN ERSKINE ANDERSON

Appeal 2017-003006
Application 14/127,663
Technology Center 3600

Before ST. JOHN COURTENAY III, JOHN PINKERTON, and
JOYCE CRAIG, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from a final rejection of claims 1–20, which are all the claims pending in this application. We have jurisdiction over the pending claims under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

Introduction

Exemplary embodiments of Appellant’s invention relate to “medical diagnostic imaging systems and, in particular, to diagnostic imaging systems which display a history of anatomical findings over serial studies.” Spec. 1.

Representative Claim

1. A method for managing clinical findings from serial studies of an anatomy of *a patient*, the method comprising:
generating, with a medical imaging system, *a first medical diagnostic image of the patient*;
reviewing, on a display, the first image to identify a finding at a location in the first image;
placing, via a user input associated with the display, an anatomical tag at the location of the finding in the first image;
comparing, on the display, the finding in *the first image with a finding in a second medical diagnostic image of the patient of the same anatomy of the patient*; and
updating, on a system associated with the display, a record of findings of the first and second images with the finding in the first image.

(Emphasis added regarding contested limitations).

References and Rejections

- A. Claims 1–20 are rejected under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 2.
- B. Claims 1–7 and 9–20 are rejected under pre-AIA 35 U.S.C. § 103(a) as being obvious over the combined teachings and suggestions of Theriault (US 2008/0004520 A1; Jan. 3, 2008) in view of Inoue et al. (US 2002/0050986 A1; May 2, 2002) (“Inoue”).
- C. Claim 8 is rejected under pre-AIA 35 U.S.C. § 103(a) as being obvious over the combined teachings and suggestions of Theriault, Inoue, and Hanna et al. (US 2001/0036307 A1; Nov. 1, 2001).

Issues on Appeal

Did the Examiner err in rejecting claims 1–20 under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter?

Did the Examiner err in rejecting claims 1–20 under pre-AIA 35 U.S.C. § 103(a) as being obvious over the cited combination of references?

ANALYSIS

We have considered all of Appellant’s arguments and any evidence presented. To the extent Appellant has not advanced separate, substantive arguments for particular claims, or other issues, such arguments are waived. *See* 37 C.F.R. § 41.37(c)(1)(iv). We highlight and address specific findings and arguments for emphasis in our analysis below.

Mayo/Alice Analysis under 35 U.S.C. § 101

Under 35 U.S.C. § 101, a patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” The Supreme Court has “long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014) (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2116 (2013)). The Supreme Court in *Alice* reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66, 82–84 (2012), “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those

that claim patent-eligible applications of those concepts.” *Alice*, 134 S. Ct. at 2355.

The first step in that analysis is to determine whether the claims at issue are directed to one of those patent-ineligible concepts, such as an *abstract idea*. Abstract ideas may include, but are not limited to, fundamental economic practices, methods of organizing human activities, an idea of itself, and mathematical formulas or relationships. *Id.* at 2355–57.

If the claims are *not directed* to a patent-ineligible concept, *the inquiry ends*. See *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1262 (Fed. Cir. 2017).

Otherwise, the inquiry proceeds to the second step in which the elements of the claims are considered “individually and ‘as an ordered combination’ to determine whether the additional elements ‘transform the nature of the claim’ into a patent-eligible application.” *Alice*, 134 S. Ct. at 2355 (quoting *Mayo*, 566 U.S. at 79, 78). We consider the question of whether the claims are directed to a *specific improvement* in the capabilities of the computing devices, or, instead, “a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016).

We, therefore, decide under step two whether the claims: (a) set forth an *inventive concept* that provides a specific means or method that *improves* the relevant technology, or (b) are directed to a result or effect that itself is the abstract idea, in which the claims merely invoke generic processes and machinery. See *Enfish*, 822 F.3d at 1336.

The Examiner's Rejection A under 35 U.S.C. § 101

Regarding the first step of the *Alice/Mayo* analysis, the Examiner concludes claims 1–20 are directed to an abstract idea:¹

The abstract idea is identified as: generating a first medical diagnostic image of a patient; reviewing the first image to identify a finding at a location in the first image; placing an anatomical tag at the location of the finding in the first image; comparing the finding in the first image with a finding in a second medical diagnostic image of the same anatomy of the patient; and updating a record of findings of the first and second images with the finding in the first image. [The] [c]laimed limitation[s] are series of step[s] that can be perform[ed] manually, hence [the] *claims are [directed to an] abstract idea under [the] example of organizing human activities. Updating [a] record of [a] finding in medical images is an abstract idea* because it compares new and stored information and uses rules to identify options, such as what to update in [the] record of finding. [The] [d]ependent claims incorporate [the] same abstract idea with additional parameter[s].

Final Act. 3, emphasis added.

Regarding the second step of the *Mayo/Alice* analysis, the Examiner finds the claims do not include additional elements that are sufficient to amount to significantly more than the judicial exception,

because the additional elements or combination of elements in the claims, other than the abstract idea per se, amount to no more than a recitation of A) *generic computer structure* that serves to perform generic computer functions that serve to merely link the abstract idea to a particular technological environment (i.e. imaging system, computer, storage device, display etc.).

¹ “Patent eligibility under § 101 presents an issue of law.” *Accenture Glob. Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1340 (Fed. Cir. 2013).

(specification does not describes any specialized component B) functions that are *well-understood, routine, and conventional activities previously known to the pertinent industry*. (receiving, displaying and outputting data).

Final Act. 4, emphasis added.²

For the aforementioned reasons, the Examiner concludes that all claims 1–20 on appeal are not patent-eligible under 35 U.S.C. § 101.

Mayo/Alice Analysis — Step 1

Regarding *Alice* Step 1, Appellant (App. Br. 3–4) does not substantively contest the Examiner’s legal conclusion that claims 1–20 are directed to an abstract idea: See Final Act. 3: “[The] claims are [an] abstract idea under [the] example of *organizing human activities*. Updating [a] record of [a] finding in medical images is an *abstract idea* because it compares new and stored information and uses rules to identify options, such as what to update in [the] record of finding.” Emphasis added. Therefore, regarding *Alice* step one, we note that arguments not made are waived. See 37 C.F.R. § 41.37(c)(1)(iv).

Mayo/Alice Analysis – Step 2

Because we conclude the claims are directed to an abstract idea for essentially the same reasons articulated by the Examiner (Final Act. 3–4;

² The patent eligibility inquiry may contain underlying issues of fact. *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1325 (Fed. Cir. 2016). In particular, “[t]he question of whether a claim element or combination of elements is well-understood, routine and conventional to a skilled artisan in the relevant field is a question of fact.” *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368 (Fed. Cir. 2018).

Ans. 2–4), we turn to the second part of the *Alice/Mayo* analysis. We analyze the claims to determine if there are additional limitations that individually, or as an ordered combination, ensure the claims amount to “significantly more” than the abstract idea. *Alice*, 134 S. Ct. at 2357.

Regarding *Alice* Step 2, Appellant addresses the purported *inventive concept* of the claims: “Independent claims 1 and 16 include additional limitations that solve an imaging system-centric problem with a claimed solution that is necessarily rooted in imaging system technology.” App. Br.

4. In support, Appellant contends:

Claims 1 and 16 include a solution to this imaging system-centric problem that is *necessarily rooted in imaging system technology*. This includes placing, via a user input of a medical imaging system, an anatomical tag at a location of an identified finding in a first image on a display, and comparing the finding in the first image with a finding in a second medical diagnostic image of the patient of the same anatomy of the patient. This application states this solution provides an efficient way to map findings in images from other modalities to images of the current exam.

App. Br. 5, emphasis added.

Appellant’s arguments do not persuade us the Examiner erred, because Appellant essentially enumerates the claim limitations (*id.*) without any persuasive explanation of how the limitations either individually, or as an ordered combination, amount to an *inventive concept* that *converts* the *abstract idea* into patent-eligible subject matter. In particular, we find the steps (or functions) of Appellant’s claims are merely performed using generic computer processing hardware: “a medical imaging system,” “a display,” and “a system associated with the display.” Claim 1. *See also*

independent claim 16: “a medical imaging system,” “a first computer with a display,” and “a storage device.”

Our reviewing court has “repeatedly held that such invocations of computers and networks that are not even arguably inventive are ‘insufficient to pass the test of an inventive concept in the application’ of an abstract idea.” *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1355 (Fed. Cir. 2016) (internal citations omitted); *see also Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1341 (Fed. Cir. 2017) (“Rather, the claims recite both a generic computer element—a processor—and a series of generic computer ‘components’ that merely restate their individual functions That is to say, they merely describe the functions of the abstract idea itself.”).

Because none of Appellant’s claims on appeal is directed to an *improvement* in a processor, database, or other computer/network component, we find none of the claim limitations, viewed “both individually and as an ordered combination,” amounts to significantly more than the judicial exception in order to sufficiently transform the nature of the claims into patent-eligible subject matter. *See Alice*, 134 S. Ct. at 2355 (internal quotations omitted) (quoting *Mayo*, 566 U.S. at 79).

Applying the aforementioned guidance from our reviewing courts to the claims before us on appeal, we conclude, in our *Mayo/Alice* analysis, that each of Appellant’s claims 1–20, considered as a whole, is directed to (under *step one*), a *patent-ineligible abstract idea*, and under *step two*, does not recite something “*significantly more*” to transform the nature of the claim into a patent-eligible application.

Although Appellant additionally cites *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299 (Fed. Circ. 2016) as an intervening case in the Reply Brief (5), we are not persuaded the Examiner erred because *McRO* guides that “[t]he abstract idea exception prevents patenting a *result* where ‘it matters not by what process or machinery the result is accomplished.’” *McRO* 837 F.3d at 1312, (quoting *O’Reilly v. Morse*, 56 U.S. 62, 113 (1854)) (emphasis added). Here, the claim 1 result of “updating, on a system associated with the display, a record of findings of the first and second images with the finding in the first image” is merely performed using a generic computer system and a display.

Therefore, we conclude the additional elements recited in the claims of generic computer hardware *do not provide an inventive concept, without more*. Accordingly, for at least the reasons discussed above, we sustain the Examiner’s rejection under 35 U.S.C. § 101 of claims 1–20, as being directed to patent-ineligible subject matter in light of *Alice* and its progeny.³

Rejection B of Claims 1–7 and 9–20 under § 103(a)

Based upon Appellant’s arguments, we decide the appeal of rejection B under § 103(a) of claims 1–7 and 9–20 on the basis of representative independent claim 1. We address § 103(a) rejection C of dependent claim 8, *infra*. See n.3 *infra*.

Based upon our review of the record, we disagree with Appellant’s arguments, and agree with and adopt the Examiner’s underlying factual

³ To the extent Appellant has not advanced separate, substantive arguments for particular claims, or other issues, such arguments are waived. See 37 C.F.R. § 41.37(c)(1)(iv).

findings and ultimate legal conclusion of obviousness for representative independent claim 1. Specifically, we agree with and adopt the reasons, rationales, and explanations articulated by the Examiner: (i) in the Final Action (5–8) from which this appeal is taken, and, (ii) as set forth in the Examiner’s responsive explanations in the Answer (4–6).⁴

Regarding representative claim 1, Appellant notes:

Independent claim 1 requires generating a first medical diagnostic image of the patient, placing an anatomical tag at a location of a finding in the first image, comparing the finding in the first image with a finding in a second medical diagnostic image of the patient of the anatomy of the patient, and updating a medical record of findings of the first and second images with the finding in the first image.” Independent claim 16 recites similar limitations.

App. Br. 5–6. Appellant contends “[t]he combination of Theriault and Inoue does not disclose or suggest at least the above claim limitations.” App. Br. 6.

In the Reply Brief (2), Appellant focuses the dispute on the claim 1 requirement of “comparing the finding in the first image with a finding in a second medical diagnostic image of the *same patient* of the *same anatomy* of the patient”

The Examiner finds Appellant is attacking the references individually. Ans. 4. The Examiner finds the cited Inoue secondary reference teaches the argued limitations which are missing from Theriault:

Inoue teaches it is old and well known to compar[e], on the display, the finding in the first image with a finding in a second medical diagnostic image of the patient of the same anatomy of

⁴ To the extent Appellant advances new arguments in the Reply Brief without showing good cause, Appellant has waived such arguments. *See* 37 C.F.R. § 41.41(b)(2).

the patient; (By disclosing, an image display apparatus comprising input means for inputting two images of the same subject obtained at different times, display means for displaying the two inputted images in a manner enabling an observer to fuse the two inputted images together for stereoscopic viewing, and display control means for controlling the display means to display the two inputted images such that the two images are projected separately into the left and right eyes of the observer. The observer 15 compares the images displayed on the display devices 12, 13 and 14 and looks for changes indicative of disease in the patient in question. See at least paragraph [0012] & [0084])(figs. 2-5 are evidence that comparing images of same anatomy).

Ans. 6.

The Examiner finds an artisan would have been motivated “to modify the method of Theriault with the technique of comparing images of [the] same anatomy of the same patient to [an] observer [to] look[] for differences between the two. Furthermore, merely combining well known elements in the prior art with predictable results does not render an invention patentably distinct over such combination.” *Id.*

Turning to the evidence, we find Inoue teaches or suggests “comparing the finding in the first image with a finding in a second medical diagnostic image of the same patient of the same anatomy of the patient,” as argued by Appellant, who principally focuses on Theriault. Reply Br. 2. See e.g., Inoue, ¶ 12, that expressly describes: “input means for inputting two images of the *same subject obtained at different times*, display means for displaying the two inputted images in a manner enabling an observer to fuse the two inputted images together for stereoscopic viewing.”

Therefore, when Theriault is modified by Inoue in the manner proffered by the Examiner (Final Act. 7), on this record, we find a

preponderance of the evidence supports the Examiner’s findings that the contested limitations are taught or suggested by the Examiner’s proffered modification.⁵

Moreover, we are in accord with the Examiner’s finding (Final Act. 7) that the combination of the cited features of Theriault and Inoue would have merely produced a predictable result. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007) (“[A] combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”).

We disagree with Appellant that the proposed modification of Theriault with Inoue “would render the prior art invention being modified unsatisfactory for its intended purpose.” (App. Br. 7). We see no reason why a physician would not first use Theriault (e.g., *see* ¶ 37) to compare patients scans against reference images to first diagnose the condition (e.g., a tumor), and then apply Inoue to compare a present scan of the *same patient* with a *previous scan of the patient at the same region of interest (ROI)* to determine if the subject tumor is regressing in response to treatment (e.g., chemotherapy or radiation treatments), or is instead progressing and not responding to the therapy.

Therefore, on this record, we find the Examiner’s findings regarding the argued claim 1 features (i.e., requiring comparing scan images of the

⁵ Our reviewing court guides: “the question under 35 USC 103 is not merely what the references expressly teach but what they would have *suggested* to one of ordinary skill in the art at the time the invention was made.” *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (quoting *In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976)). (emphasis added); *see also* MPEP § 2123.

same patient of the same anatomy) are supported by a preponderance of the evidence, based upon the *combined* teachings and suggestions of the cited references.

Combinability of the References under §103

Appellant advances a second purported reason for reversal, and contends the Theriault and Inoue references have been improperly combined by the Examiner:

Theriault is directed to automatically generating a diagnosis for a patient from reference images of known pathological conditions of other patients. If a reference image were an image of the same anatomy of the same patient with the pathological condition known, then the comparison would not be needed because the pathological condition of the patient would already be known. Furthermore, the images in Inoue are not of a known pathological condition; Inoue visually compares images of the same patient and acquired at different times to detect differences between the images.

App. Br. 6.

Appellant urges, inter alia:

it would not have been obvious to modify Theriault with Inoue as purported by the Office at least because Theriault would not automatically generate a diagnosis for a patient, which it is the intended purpose of Theriault, because it would already be known that the patient has the pathological condition that is in the reference image of the pathological condition.

App. Br. 7.

We disagree, and find the Examiner (Final Act. 7) sets forth sufficient “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). We note the presence or absence of a reason “to combine references in an

obviousness determination is a pure question of fact.” *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000) (citing *In re Dembiczak*, 175 F.3d 994, 1000 (Fed. Cir. 1999)). Furthermore, a reason to combine teachings from the prior art “may be found in explicit or implicit teachings within the references themselves, from the ordinary knowledge of those skilled in the art, or from the nature of the problem to be solved.” *WMS Gaming Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1355 (Fed. Cir. 1999) (citing *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)).

Here, the Examiner finds an artisan would have been motivated:

to modify the method of Theriault with [Inoue’s] technique of comparing images of [the] same anatomy of the same patient to [the] observer [who] looks for differences between the two. Furthermore, merely combining well known elements in the prior art with predictable results does not render an invention patentably distinct over such combination.

Final Act. 7.

In further support of the proffered combination, the Examiner (*id.*) cites to *KSR*, 550 U.S. 398, 401 (2007) (“[A] combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”), and MPEP § 2141(III)(A) (“Combining prior art elements according to known methods to yield predictable results.”).

Moreover, Appellant does not provide evidence sufficient to demonstrate that combining the teachings of Theriault and Inoue (and Hanna), would have been “uniquely challenging or difficult for one of ordinary skill in the art,” (*Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007)), nor has Appellant provided any objective evidence of secondary considerations, which our reviewing court guides

“operates as a beneficial check on hindsight.” *Cheese Systems, Inc. v. Tetra Pak Cheese and Powder Systems, Inc.*, 725 F.3d 1341, 1352 (Fed. Cir. 2013)

Therefore, based upon a preponderance of the evidence, we sustain the Examiner’s § 103(a) rejection B of representative independent claim 1, and of the additional claims 2–7 and 9–20, also rejected under rejection B, which are not argued separately. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Rejection C of Remaining Claim 8

Because Appellant does not advance separate, substantive arguments for the remaining rejected claim 8 on appeal, such arguments are waived. *See* 37 C.F.R. § 41.37(c)(1)(iv). *See e.g.*, “claim 8 is patentable over the subject combination of references for at least the same reasons discussed above with respect to claim 1, with claim 8 containing further distinguishing patentable features.” App. Br. 8. However, Appellant does not further traverse the rejection by substantively explaining *how* the purported “further distinguishing patentable features” of claim 8 distinguish over Hanna, in combination of Theriault and Inoue. *Id.* Therefore, we sustain the Examiner’s § 103 rejection C of claim 8 for the same reasons discussed above regarding § 103 rejection B of independent claim 1.

CONCLUSIONS

The Examiner did not err in rejecting claims 1–20, under 35 U.S.C. § 101, as being directed to patent-ineligible subject matter.

The Examiner did not err in rejecting claims 1–20, under pre-AIA 35 U.S.C. § 103(a), as being obvious over the combined teachings and suggestions of the cited references.

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DECISION

We affirm the Examiner's decision rejecting claims 1–20, under 35 U.S.C. § 101.

We affirm the Examiner's decision rejecting claims 1–20, under pre-AIA 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv). *See* 37 C.F.R. § 41.50(f).

AFFIRMED